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ABSTRACT

Materials contained in this training module are designed to carry the classroom teacher through a step-by-step process for developing a job entry, individualized curriculum which involves two phases. (Phase 1 is the preparation or developmental phase which looks closely at the job and the student, and includes the job description, task analysis, description of the student population, job prerequisites, prerequisite test, and job objectives. Phase 2, the curriculum phase, is designed for actual student use in the form of learning activity packages (LAPs). These two phases together form a job entry curriculum.) This individualized module is separated into eight enabling elements, each of which includes a pre-assessment and study questions. Enabling elements include the following: (1) Analyze a job description and a task analysis, (2) analyze a given student population by developing a student population description, prerequisites, and prerequisite test, (3) construct a goal statement, (4) construct a specific objective, (5) given a task analysis, develop corresponding job objectives, (6) define each of the following as they relate to a LAP: Goal, specific objectives, activities, pretest, and posttest, (7) given a set of job objectives, develop a LAP, and (8) given classroom problem situations involving individualized instruction, identify possible solutions. A complete module post-assessment is presented at the conclusion of the module. Answer keys for selected study questions and post-assessment are included. (TA)

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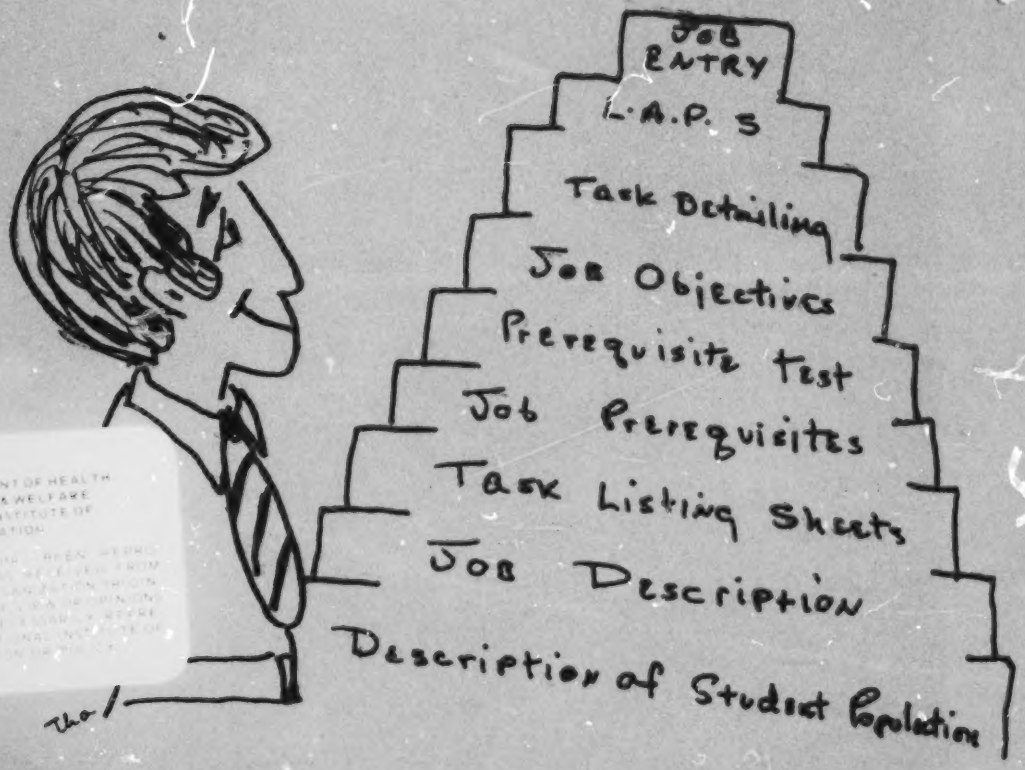
A TRAINING MODULE

DEVELOPING A JOB ENTRY, INDIVIDUALIZED CURRICULUM



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PROSPECTUS

The advent of recent changing educational philosophies has necessitated the re-evaluating of numerous firmly entrenched educational concepts. No longer is proper instruction necessarily equated with a textbook, blackboard, chalk and a teacher. The belief that a college degree is an essential prerequisite for economic and social success is quickly becoming outdated. Whereas previously the intellectual student was given the most attention, the priorities of educators are becoming more equally balanced between the scholar and the potential early school leaver.

As a result, individualized instruction, vocational education and programs designed to meet the needs of the potential early school leaver are presently in vogue.

An individualized, job entry curriculum is a realistic vehicle for providing job entry skills to all desirous students.

First, as the name implies it is individualized. It also can provide entry level skills to a student who cannot or will not graduate.

Time factors are removed from a job entry curriculum---it is open ended---a student may enter, leave and re-enter as he desires.

These advantages, however, generate certain initial disadvantages.

Teachers must learn new skills in order to manage an individualized program.

Many educators look extremely negative towards a program in which a graduation diploma is not necessarily equated with educational success.

Finally, administrators will, in many cases, become alarmed at the free movement of students in and out of the program.

All these disadvantages in time can be overcome and should not be used as the ultimate criteria in evaluating the program. The students will gain, which should be the sole evaluative criteria.

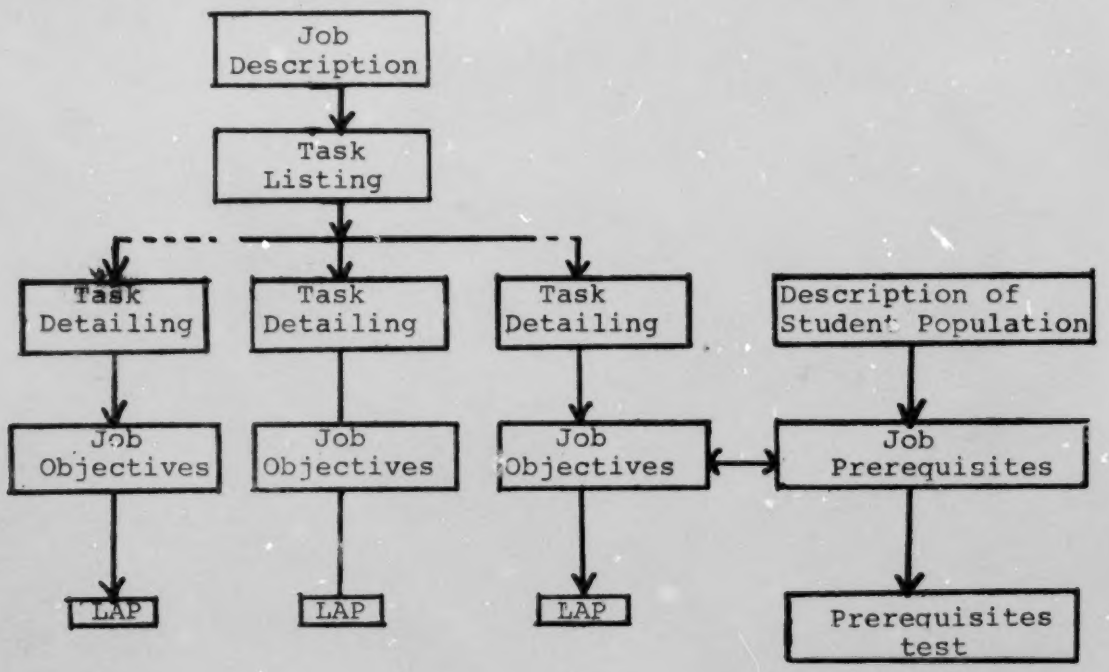
INTRODUCTION

This module is designed to carry the user through a step-by-step process for developing a job entry, individulized curriculum. Such a process includes two distinct, yet related, phases.

Phase I is the preparation or developmental phase which looks closely at the job and the student. This phase includes the job description, task analysis (task listing and task detailing), description of student population, job prerequisites, prerequisite test and job objectives.

Phase II, the curriculum phase, is designed for actual student use in the form of learning activity packages (LAP). The development of a LAP will be discussed fully in Enabling Elements VI and VII.

These two phases together form a job entry curriculum. The chart below depicts the components, and their relationship, of a job entry curriculum.



The broken lines under the task listing indicates that the number of task detailings is not constant--the number will vary for each job entry.

Notice that the Job Prerequisites and Job Objectives interact. This will be discussed later in the module.

The module is designed to carry the learner through completion of all the components, illustrated in the chart, except for the LAPS. One LAP will be formulated by completing Enabling Element VII in the module. The learner may complete Activity 4 in Enabling Element VII as many times as necessary in order to generate the desired number of LAPS. Thus, completing the entire module and recycling Activity 4 in Enabling Element VII as many times as there are LAPS in the job entry curriculum will provide a completed job entry curriculum.

MODULE DIRECTIONS

This module is separated into eight enabling elements, each of which includes a pre-assessment.

The module is individualized; that is, the learner may work at his own speed, spending more time in areas in which he is weak and less in areas in which he is strong.

Each enabling element contains study questions. Answers for these questions are provided on pages 147-152.

The learner should check with the trainer if assistance is needed.

A score of 80% on the post assessment is necessary for successful completion of the module.

GENERAL OBJECTIVE

You can develop, in writing, a job entry, individualized curriculum.

SPECIFIC OBJECTIVES

You will:

1. demonstrate the ability to analyze a chosen job by formulating, in writing, a job description and a task analysis.

2. demonstrate the ability to analyze a given student population by developing, in writing, a student population description, prerequisites and prerequisite test.

3. correctly construct a goal statement, including the three major components.

4. correctly construct a specific objective, including the three major components.

5. given a task analysis, develop in writing corresponding job objectives.

6. define each of the following as they relate to a learning activity package (LAP): goal, specific objectives, activities, pretest and post test.

7. given a set of job objectives, develop in writing at least one learning activity package.

8. given classroom problem situations involving individualized instruction, identify possible solutions.

PRE-ASSESSMENT AND DIAGNOSTIC SELF-TEST

ENABLING ELEMENT I

"Analyzing the Job"

DIRECTIONS

On the next two pages are several questions which correspond to the objective of this enabling element. After completing the test items, check your answers with those provided on the sheet immediately following the questions.

For each question, select the best answer by writing the corresponding letter in the space provided.

( ) 1. A job description should

a. briefly describe the job
b. be brief, simple but explicit
c. completely analyze the job
d. a and b only
e. a and c only
f. b and c only
g. a, b and c

( ) 2. The task listing

a. is derived from the job description.
b. is derived from the task detailing.
c. lists those tasks a person must be able to do in order to be compotent in a given job.
d. a and b only
e. a and c only
f. b and c only
g. a, b and c

( ) 3. The task detailing

a. is derived from the job description.
b. is derived from the task listing
c. lists the steps necessary for completing a given task.
d. a and b only
e. a and c only
f. b and c only
g. a, b and c

( ) 4. A task statement must

a. begin with a "task" verb.
b. be a complete sentence.
c. be stated in behavioral terms.
d. a and b only
e. a and c only
f. b and c only
g. a, b and c

ANSWER SHEET

PRE-ASSESSMENT AND DIAGNOSTIC SELF-TEST

ENABLING ELEMENT I

QUESTION	CORRECT ANSWER
1.	d
2.	e
3.	f
4.	a

INTERPRETATION

If you correctly answered all four questions, it is not necessary that you complete all of Enabling Element I, though it will reinforce your skills in this area. In such a case, you may, if desired, complete only Experience Activity I beginning on page 26.

If you did not correctly answer all four questions, you should complete all of Enabling Element I.

ENABLING ELEMENT I

OBJECTIVE

The objective of this enabling element is: "You will demonstrate the ability to analyze a chosen job by formulating, in writing, a job description and a task analysis."

INSTRUCTIONAL ACTIVITIES (To be completed in sequence)

1. Read and study "The Job Description," page 10 of this module.
2. Read and study "Task Analysis," pages 12 to 16 of this module.
3. Complete the study questions, "Analyzing the Job" on pages 21-25 of this module.
4. Formulate, in writing, a job description, task listing and task detailing by completing Experience Activity I on pages 26-29 of this module.

Analyze the chosen job carefully.

"THE JOB DESCRIPTION"

A job description describes in brief, simple but explicit terms that which someone does when performing the job. Selection of the job to be described, and consequently analyzed, is a crucial step. If the job is too encompassing then it will be difficult if not impossible to write a corresponding job description which is "brief, simple but explicit." In such a case, the job should be narrowed to a specific job entry. For example, the job "auto mechanics" would be much too broad---a corresponding job description would by necessity be much too long. However, if we narrow our selection to a specific job entry within the occupation of auto mechanics, such as Automobile Service Specialist (Steering Systems), a corresponding job description may read as follows

> "Diagnoses malfunctions and makes necessary repairs to front suspensions. Corrects tire balance and wear problems."

This job description meets the "brief, simple but explicit" criteria.

A second choice of a job entry within auto mechanics might be "Automobile Service Specialist (Brakes)," with the following job description

> "Diagnoses and tests malfunctions and makes necessary repairs to hydraulic brake systems, drum and disc brakes and power brake units."

This job description also meets the "brief, simple but explicit" criteria.

Step one, then, in developing the preparation phase is choosing the job entry and writing a corresponding job description. A sample job description is provided on the following page.

Example:

AUTOMOBILE MECHANICS

JOB DESCRIPTION

JOB ENTRY - AUTOMOBILE SERVICE SPECIALIST (BRAKES)

Diagnoses and tests malfunctions and makes necessary repairs to hydraulic brake systems, drum and disc brakes and power brake units.

Job Description should be brief and explicit.

"THE TASK ANALYSIS"

The task analysis, consisting of two parts, describes job performance in finer detail, listing each of the tasks of which the job is composed (Task Listing) and the steps necessary to complete each of these tasks (Task Detailing).

The task listing is derived directly from the job description. For example, the job description for "Automobile Service Specialist (Steering Systems),"

> "Diagnoses malfunctions and makes necessary repairs to front suspensions. Corrects tire balance and wear problems."

would generate two tasks.

1. Services front suspension.
2. Corrects tire problems.

The job description for "Automobile Service Specialist (Brakes)"

> "Diagnoses and tests malfunctions and makes necessary repairs to hydraulic brake systems, drum and disc brakes and power brake units."

would generate the following tasks.

1. Services hydraulic brake systems.
2. Services drum brakes.
3. Services disc brakes.
4. Services power brake units.

In both examples, the task listing does just that--lists those tasks outlined in the job description. Notice also, that each task begins with a "task verb"--it indicates some action on the part of a person employed in the described job.

Looking at the "Task Listing Sheet" worksheet on page 14 , there are three other entries: "Frequency of Performance," "Importance" and "Learning Difficulty." The first, "Frequency of Performance" indicates how often that task is accomplished on the job, such as seldom, weekly, daily, frequently, etc.

"Importance" is a relative, value judgement which must be made by the writer. A numerical scale of 1-3 is used, with "1" indicating a high degree of importance and "3" indicating a low degree of importance.

The third entry, "Learning Difficulty" is also to some extent a value judgement. Instructors who have been away from the "job" for some time may need to consult with a student to make this determination. A task may be designated as easy, moderate, difficult or a combination such as moderately difficult.

The usefulness of these entries lies in the curriculum development phase. For instance, a task which is described as being performed "frequently" with a "1" importance and a "difficult" learning difficulty should be given a corresponding amount of attention in the curriculum development. Step 2, then, in the preparation phase is completing the task listing sheet. A sample of such is provided on the next page.

The difficulty a student will have with each task must be assessed.

AUTOMOBILE MECHANICS

TASK LISTING SHEET

JOB ENTRY - AUTOMOBILE SERVICE SPECIALIST (BRAKES)

NO.	TASK	FREQUENCY OF PERFORMANCE	IMPORTANCE	LEARNING DIFFICULTY
1	Services hydraulic brake systems.	Daily	2	Moderate
2	Services drum brakes.	Daily	2	Moderate
3	Services disc brakes.	Daily	2	Easy
4	Services power brake units.	Frequently	1	Difficult

The second part of the task analysis, the task detailing, details the steps necessary to complete each of the tasks in the task listing and thus is derived from the task listing. A set of task details is necessary for each task listed in the task listing.

Using the task "Services power brake units," as an example, we ask "What steps would a mechanic use to service a power brake unit?" Answers might vary depending upon a particular mechanic's approach. However, the end result should always be the same--the power brake unit is satisfactorily serviced. One possible set of steps might be

1. diagnoses malfunctions and replaces power brake units.
2. diagnoses malfunctions and replaces vacuum lines and components.
3. adjusts power booster linkage .

Notice that in the above examples and on the sample task detailing sheets provided on pages 17 to 20 that each task begins with a "task verb."

There are two additional entries on the task detailing sheets, "Learning Difficulty" which was previously discussed and "Type of Performance."

These are basically four types of performances and are defined as follows:

1. Recall - indicates a memorization process

2. Manipulation - indicates "hands on" or psychomotor performances.

3. Discrimination - involves decision making when given two or more choices.

4. Problem Solving - involves analyzing a complex situation and making a decision.

Very few tasks will solely be one type of performance. In fact, often entries in this column will be a combination of two types of performances. For instance, the task "adjusts power booster linkage" indicates a "hands on" or manipulation type of performance. However, "adjusting" indicates a decision making process, i.e. "how much should the linkage be adjusted?" Thus, discrimination is also involved, and for the given task the type of performance would be "manipulation-discrimination."

Sample task detailing sheets for the task listing on

page 14 is provided on pages 17 to 20. Remember one task detailing sheet is needed for each task given in the task listing.

AUTOMOBILE MECHANICS

TASK DETAILING SHEET

JOB ENTRY - AUTOMOBILE SERVICE SPECIALIST (BRAKES)

TASK: HYDRAULIC SYSTEMS

NO.	STEPS IN PERFORMING TASK	TYPE OF PERFORMANCE	LEARNING DIFFICULTY
1	Removes, reconditions and/or replaces hydraulic wheel cylinders.	Manipulation-Discrimination	Moderate
2	Removes, reconditions and/or replaces hydraulic master cylinders.	Manipulation-Discrimination	Moderate
3	Removes, tests and replaces stop light switches.	Manipulation-Discrimination	Easy
4	Bleeds hydraulic brake systems.	Manipulation	Easy

AUTOMOBILE MECHANICS

TASK DETAILING SHEET

JOB ENTRY - AUTOMOBILE SERVICE SPECIALIST (BRAKES)

TASK: DRAKE SHOES AND DRUMS

NO.	STEPS IN PERFORMING TASK	TYPE OF PERFORMANCE	LEARNING DIFFICULTY
1	Replaces and adjusts standard type brake shoes.	Manipulation-Discrimination	Moderate
2	Replaces and adjusts self-adjusting type brake shoes.	Manipulation-Discrimination	Moderate
3	Adjusts parking brakes.	Manipulation-Discrimination	Easy
4	Cleans, repacks, replaces front wheel bearings and adjusts wheel bearings.	Manipulation-Discrimination	Easy
5	Replaces front wheel seals.	Manipulation	Easy
6	Turns brake drums and records measurements.	Manipulation	Moderate
7	Grinds brake drums and records measurements.	Manipulation	Moderately Difficult
8	Grinds brake shoes.	Manipulation	Moderate

AUTOMOBILE MECHANICS

TASK DETAILING SHEET

JCB ENTRY - AUTOMOBILE SERVICE SPECIALIST (BRAKES)

TASK: DISC BRAKES

NO.	STEPS IN PERFORMING TASK	TYPE OF PERFORMANCE	LEARNING DIFFICULTY
1	Replaces brake pads.	Manipulation	Moderate
2	Reconditions brake calipers.	Manipulation-Discrimination	Moderately Difficult
3	Replaces piston seals.	Manipulation	Moderate
4	Turns brake rotors.	Manipulation-Discrimination	Difficult
5	Bleeds brake systems.	Manipulation-Discrimination	Moderate

AUTOMOBILE MECHANICS

TASK DETAILING SHEET

JOB ENTRY - AUTOMOBILE SERVICE SPECIALIST (BRAKES)

TASK: POWER BRAKES

NO.	STEPS IN PERFORMING TASK	TYPE OF PERFORMANCE	LEARNING DIFFICULTY
1	Diagnoses malfunctions and replaces power brake units.	Manipulation-Discrimination	Moderate
2	Diagnoses malfunctions and replaces vacuum lines and components.	Manipulation-Discrimination	Moderate
3	Adjusts power booster linkage.	Manipulation-Discrimination	Moderate

STUDY QUESTIONS

"ANALYZING THE JOB"

Directions: Complete each of the following study questions if possible without referring to the informational material. Check your answers with the answer key on pages 147 through 152. Decide whether each of the following statements is true (T) or false (F) by circling the appropriate letter. For each statement you select as false, reword the statement so it becomes true, using the space provided.

T or F 1. A job description describes in brief, simple but explicit terms that which someone does when performing the job.

T or F 2. Selection of the job to be described is not a critical step.

T or F 3. The selection of "Retail Druggist" as a job entry to be described and analyzed would be appropriate.

T or F 4. The task analysis consists of two parts, task listing and task detailing.

T or F 5. The task listing, lists each of the tasks of which the job is composed.

T or F 6. The task detailing lists the steps necessary to complete a given task.

T or F 7. Each task statement in both the task listing and task detailing must begin with a "task verb."

T or F 8. For each task listed in the task listing, there must be a corresponding task detailing.

T or F 9. The task detailing is derived directly from the job description.

T or F 10. The task listing is the final step in analyzing the job.

For each of the following questions, select the best answer by writing the appropriate letter in the space provided.

( ) 11. Which of the following job entry titles would be appropriate for describing and analyzing?

a. Food Service Worker
b. Busboy
c. Fast Order Cook
d. a and b only
e. a and c only
f. b and c only
g. a, b and c

( ) 12. Which of the following job entry titles would be appropriate for describing and analyzing?

a. Retail Grocer
b. Cashier
c. Stockboy
d. a and b only
e. a and c only
f. b and c only
g. a, b and c

( ) 13. The three steps in analyzing the job should be completed in the sequence

a. job description, task detailing, task listing.
b. task listing, job description, task detailing.
c. job description, task listing, task detailing.
d. task listing, task detailing, job description.

( ) 14. The task listing

a. lists each of the tasks of which a job is composed.
b. lists the steps necessary to complete a given task.
c. is derived from the job description.
d. is derived from the task detailing.
e. a and c only
f. a and d only
g. b and c only
h. b and d only

( ) 15. Which of the following would be an appropriate entry in the "Frequency of Performance" column?

a. "3"
b. daily
c. difficult
d. manipulation

( ) 16. Which of the following would be an appropriate entry in the "Importance" column?

a. "2"
b. weekly
c. easy
d. discrimination

( ) 17. Which of the following would be an appropriate entry in the "Learning Difficulty" column?

a. "1"
b. frequently
c. moderate
d. problem solving

( ) 18. Which of the following would be an appropriate entry in the "Type of Performance" column?

a. "2"
b. seldom
c. moderately difficult
d. recall

( ) 19. Which of the following would be classified as task verbs?

a. understands
b. learns
c. adjusts
d. a and b only
e. a and c only
f. b and c only
g. a, b and c
h. neither a, b or c.

( ) 20. Which of the following would be classified as task verbs?

a. grinds
b. cuts

c. diagnoses
d. a and b only
e. a and c only
f. b and c only
g. a, b and c
h. neither a, b or c

In the left hand columns are the four "Types of Performance." Match each definition in the right hand column with the appropriate "Type of Performance" by writing the correct letter in the space provided.

21.	( )	Recall	a. "involves analyzing a complex situation and making a decision"
22.	( )	Manipulation	b. "indicates 'hands on' or psychomotor performance"
23.	( )	Discrimination	c. "indicates a memorization process"
24.	( )	Problem Solving	d. "involves decision making when given two or more choices"

"EXPERIENCE ACTIVITY I"

Using the worksheets provided on the next few pages, complete each of the following. You may refer back to the informational materials whenever necessary.

1. Select a job entry and formulate in writing a corresponding job description. Show this to the trainer before proceeding to the next step.

2. Using the job description written in number one above generate in writing, a task listing. Fill in each column for each task listed. Show this to the trainer before proceeding to the next step.

If you desire to develop all task detailing sheets at this time, complete activity 3a. If you desire to develop just one task detailing sheet at this time, complete activity 3b.

3a. For each task listed in your task listing, complete a task detailing sheet. Extra worksheets may be obtained from the trainer. Show each task detailing sheet to the trainer before proceeding to the next enabling element.

3b. Choose one (preferably the first) task listed in the task listing and complete a corresponding task detailing sheet. Show the completed task detailing sheet to the trainer before proceeding to the next enabling element.

NOTE: The job description, task listing and task detailing sheet(s) which you have completed and had approved by the trainer should be saved for future use.

(VOCATIONAL COURSE)

JOB DESCRIPTION

Job Entry -

(VOCATIONAL COURSE)

TASK LISTING SHEET

Job Entry -

NO.	TASK	FREQUENCY OF PERFORMANCE	IMPORTANCE	LEARNING DIFFICULTY

(VOCATIONAL COURSE)

TASK DETAILING SHEET

Job Entry -

TASK:

NO.	STEPS IN PERFORMING TASK	TYPE OF PERFORMANCE	LEARNING DIFFICULTY

The following enabling element is designed to allow the learner to analyze a given student population and develop in writing a description of the student population, job prerequisites and prerequisite test. Although it is essential these components be developed, this enabling element may be completed at any time during the process of developing the job entry curriculum.

PRE-ASSESSMENT AND DIAGNOSTIC SELF-TEST

ENABLING ELEMENT II

"ANALYZING THE STUDENT"

DIRECTIONS

On the next two pages are several questions which correspond to the objectives of this enabling element. After completing the test items, check your answers with those provided on the sheet immediately following the questions.

For each question select the best answer by writing the corresponding letter in the space provided.

( ) 1. The description of student population.

a. is useful for purposes of designing the curriculum

b. is based upon the type of student desired

c. is based upon the type of student actually in the course

d. a and b only

e. a and c only

( ) 2. The student population is described in terms of

a. physical characteristics

b. education

c. motivation

d. interests and attitudes

e. biasis and prejudices

f. b, c and d only

g. b, c and e only

h. a, b, c, d and e

i. neither a, b, c, d or e

( ) 3. Job Prerequisites

a. lists the abilities, characteristics and personality traits a student should possess before addmittance into the respected job entry.

b. are needed for each job entry.

c. should be used to exclude "undesirable" students from the program.

d. a and b only

e. a and c only

f. b and c only

g. a, b and c

( ) 4. Prerequisite Test

a. is constructed from the job prerequisite

b. lists certain test items which answer the question "what must the student do to convince me that he has the skills that I have assumed he has"?

c. is constructed from the student population description

d. a and b only

e. a and c only

f. b and c only

g. a, b and c

ANSWER SHEET

PRE-ASSESSMENT AND DIAGNOSTIC SELF-TEST

ENABLING ELEMENT II

QUESTION	CORRECT ANSWER
1	e
2	h
3	d
4	d

INTERPRETATION

If you correctly answered all 4 questions, it is not necessary that you complete all of Enabling Element II, though it will reinforce your skills in this area. In such a case you may, if desired, complete only Experience Activity II, beginning on page 43 of this module.

If you did not correctly answer all 4 questions, you should complete Enabling Element II.

ENABLING ELEMENT NO. II

OBJECTIVE

The objective of this enabling element is: You will demonstrate the ability to analyze a given student population by developing, in writing, a student population description, prerequisites and prerequisite test.

INSTRUCTIONAL ACTIVITIES (To be completed in sequence)

1. Read and study "The Student Population Description," pages 34 to 36 of this module.

2. Read and study "Job Prerequisites," pages 37 and 38 of this module.

3. Read and study "Prerequisite Test," pages 39 and 40 of this module.

4. Complete the study questions, "Analyzing the Student," pages 41 and 42 of this module.

5. Formulate, in writing, a student population description, job prerequisites and prerequisite test by completing Experience Activity II on pages 43 to 46 of this module.

"The Student Population Description"

Designing a vocational course is strongly influenced by two major factors: first, analyzing the vocation itself, which was discussed in Enabling Element I, and second, analyzing the student population as it presently exists.

The job analysis determines what is to be taught, the student analysis determines to whom it will be taught.

Combining the two, determines how it will be taught.

The student population description is composed of the following componments.

1. Physical Characteristics. "The physical nature of your students may influence the tools and procedures that can be included in the instruction. Describe the general nature of your population; indicate general handicaps as well as assets such as special strength, agility, balance, or endurance."[1]

2. Education. "The kind of education your incoming students have had in the past will have a good deal of influence on the length of the course, examples you can use, vocabulary that will be understood, and the level of abstraction that might be meaningful."[1]

3. Motivation. "Are the students generally eager to learn the occupation you are teaching, or is motivation something of a problem? The less motivated you feel they are, the more you will have to concern yourself with keeping students interested at every step of the course."[1]

4. Interests. "What kinds of things are the students interested in? Knowing their interests will help keep them motivated. What are their special skills or aptitudes? Are they good at fixing cars? Are they short on manual dexterity? The answers to these questions will assist you in writing realistic prerequisites, and may have some influence on what you can reasonably expect in the way of terminal performance from your students."[1]

5. Attitudes, biases and prejudices. Does your target population consist primarily of one ethnic group? What are their strong convictions and biases? This information may also influence the kind of examples you can effectively use, and may provide other clues to student motivation.

A sample student population description is provided on the following page.

1. Mager, Robert & Beach, Kenneth,
Developing Vocational Instruction
Fearon Publishers, Belmont, California, 1967.

Student population description should include physical characteristics, motivation, interests, attitudes and education.

AUTOMOBILE MECHANICS

DESCRIPTION OF STUDENT POPULATION

Physical Characteristics - - - - - - -	Male 14-19 years old, very good stamina, healthy and physically strong. Good manipulation ability.
Education - - - - - - - - - - - - - - -	A few are potential high school dropouts, generally below average reading level. Have knowledge of simple mechanics. Below grade level in math. Generally lacking in basic academic and study skills.
Motivation - - - - - - - - - - - - - - -	Desirous of obtaining skills in auto mechanics. Most desire on the job training.
Interest - - - - - - - - - - - - - - - -	Enjoy working with hands. Show some interest in attending school. Show little interest in academic subjects, but express a high degree of satisfaction when success is obtained.
Attitudes, Biases and Prejudices - -	Many from average and below average environments, broken and disturbed homes. Unaccustomed to following instructions.

"JOB PREREQUISITES"

There is no set format for determining the job prequisites. Basically, they list the abilities, characteristics and personality traits you assume the student will have before admittance into the respective job entry.

However, the formulation of the job prerequisites should be given a great deal of thought.

Continuous consultation with the student population description is also necessary if the job prerequisites are to be realistic.

For example, if, on an average, your students read on a 5.0 grade level, then realistically the job prerequisites should not insist on a 7.0 reading grade level.

In such a case, most, if not all, the present students would be excluded from the program. Rather, the curriculum should be designed so that students reading at the 5th grade level or above can function.

Students reading below that level, should be given scheduled time in a reading lab. Thus, educational job prerequisites should not be necessarily used to exclude students from the program, but rather to assist in building a total program which will meet each student's needs.

A sample list of job prerequisites is provided on the following page.

AUTOMOBILE MECHANICS

JOB PREREQUISITES

JOB ENTRY - AUTOMOBILE SERVICE SPECIALIST (BRAKES)

1. Student must have good physical stamina.
2. Student must have functional eyesight.
3. Student must possess above average manual dexterity.
4. Student should realize that he must read trade journals and attend automotive clinics to stay abreast with technological changes.
5. Student must read at 5th grade level.
6. Student must be able to perform the four basic mathematic operations.
7. The student must enjoy working under varying temperatures.
8. The student must be able to identify and correctly use basic hand tools.
9. The student must be able to correctly use service manuals.
10. The student must be able to perform basic repair skills.

"PREREQUISITE TEST"

The job prerequisites list the abilities, characteristics and personality traits you assume the student will have before admittance into the program.

The prerequisite test, constructed from the job prerequisites, should answer the question, "what must the student do to convince me that he has the skills that I have assumed he has?"

A prerequisite test item is needed for each job prerequisite.

Constructing and implementing the prerequisite test will often necessitate some external assistance. For instance, if you determine a student should read at the 6.0 grade level, then a reading teacher can assist in deciding which reading test to use and even administer the test, when necessary.

Other than written tests, many of the job prerequisites can be tested via teacher observations, conference with the student, and the student's records.

A sample prerequisite test is provided on the following page.

AUTOMOBILE MECHANICS

PREREQUISITE TEST

JOB ENTRY - AUTOMOBILE SERVICE SPECIALIST (BRAKES)

	Yes	No
1. The student does have good physical stamina. Teacher observation.	____	____
2. The student does have functional eyesight. Teacher observation or vision test.	____	____
3. The student does possess above average manual dexterity. G.A.T.B. Test, Part M. Score_____	____	____
4. The student does realize he must read trade journals, and attend automobile clinics in order to stay abreast with technological changes. Student-teacher conference.	____	____
5. The student does read at 5th grade level. R.F.U. Reading Test. Score_____ Reading Level_____	____	____
6. The student can perform the four basic mathematical operations. W.R.A.T. or L.S.I. Math Test. Score_____ Grade Level_____	____	____
7. The student does enjoy working under varying temperatures. Student-teacher conference.	____	____
8. The student can identify and correctly use basic hand tools. Demonstration to teacher and teacher administered test. Minimum acceptable score 80%.	____	____
9. The student can correctly use service manuals. Successful completion of the requirements of Introduction to Power Mechanics.	____	____
10. The student can perform basic repair skills. Successful completion of the requirements of Introduction to Power Mechanics.	____	____

STUDY QUESTIONS

"ANALYZING THE STUDENT"

DIRECTIONS

Complete each of the following study questions, if possible, without referring to the informational materials. Check your answers with the answer key on pages 147-152.

Describe whether each of the following statements are true T or false F by circling the appropriate letter. For each statement you select as false, rewrite the statement so it becomes true, using the space provided.

T or F 1. The design of a vocational course is determined solely by the task analysis.

T or F 2. The student population description concerns itself with the student population as it presently exists in a vocational area.

T or F 3. Job prerequisites should be constructed with continuous consultation with the student population description.

T or F 4. Job prerequisites should be used solely to exclude undesirable students from the vocational program.

T or F 5. Job prerequisites should be developed using a set, standardized format.

T or F 6. The prerequisite test should be constructed from the job description.

T or F 7. A prerequisite test item is necessary for each job prerequisite listed.

T or F 8. Constructing and implementing the prerequisite test should be the sole responsibility of the vocational instructor.

"EXPERIENCE ACTIVITY II"

Using the worksheets provided on the next few pages, complete each of the following.

You may refer back to the informational materials whenever necessary.

1. Using your students, formulate in writing a student population description. Show this to the trainer before proceeding to the next step.

2. Formulate, in writing, the job prerequisites for the job entry you selected in Enabling Element I. Refer to the student population description. Show the completed job prerequisites to the trainer before proceeding to the next step.

3. Formulate, in writing, a prerequisite test. Consult with supportive personnel such as a reading or math teacher or guidance counselor, when necessary. Show the completed prerequisite test to the trainer before proceeding to the next Enabling Element.

NOTE The description of student population, job prerequisites and prerequisite test which you have just completed and had approved by the trainer should be saved for future use.

(VOCATIONAL COURSE)

Description of Student Population

Physical Characteristics ----------

Education ----------

Motivation ----------

Interest ----------

Attitudes, Biases and Prejudices ----------

(VOCATIONAL COURSE)

JOB PREREQUISITES

Job Entry

(VOCATIONAL COURSE)

PREREQUISITE TEST

Job Entry -

	Yes	No

PRE-ASSESSMENT AND DIAGNOSTIC SELF-TEST

ENABLING ELEMENT NO. III

"GOAL STATEMENTS"

DIRECTIONS

On this page are four questions which cover the objectives of this module. After completing the test items for an enabling element, check your answers with those provided in the answer sheet on page 48 of this module.

Identify each of the following goals as either appropriate (A) or inappropriate (I) by circling the correct letter. For each goal you select as inappropriate, rewrite the statement so that it is appropriate.

A or I 1. To develop the necessary skills for adding mixed numbers.

A or I 2. To assist the student in gaining the necessary skills for reconditioning a four cycle engine.

A or I 3. To develop in the Occupational Specialist an awareness of the relationship between a counselor and counselee.

A or I 4. To assist in developing the ability to subtract.

ANSWER SHEET FOR ENABLING ELEMENT NO. III

QUESTION	CORRECT ANSWER
1.	I
2.	A
3.	A
4.	I

#1, rewritten: To develop in the student the necessary skills for adding mixed numbers.

#4, rewritten: To assist the student in developing the ability to subtract fractions.

INTERPRETATION

If you correctly answered all four questions, it is not necessary that you complete Enabling Element III, though it will reinforce your skills in this area.

If you did not correctly answer all four questions, you should complete Enabling Element III.

ENABLING ELEMENT NO. III

OBJECTIVE

The objective of this enabling element is: "You will correctly construct a goal statement, including the three major components."

In order to meet this objective, you should complete the following activity.

INSTRUCTIONAL ACTIVITY

1. Read and study "Goals," pages 50 through 52 of this module.
   Complete the study questions on pages 53 through 56 of this module.

"GOALS"

GOAL

A statement of general instructional intent.

A correctly written goal must contain the following three components.

A. The behavioral domain or area - reflects the type of behavior that is being requested of the learner.

Example: to add; to recognize; to become aware of; to develop an appreciation for; to generate.

B. The psychological object(s) involved - refers to the recipient or learner.

Example: student; teacher; occupational specialist.

C. The program variable - refers to that aspect of the curriculum to which the student is being exposed.

Example: whole numbers; sentence structure, the American Heritage.

The competency to which this module refers is "developing a job entry, individualized curriculum." If we were to rewrite this as a goal statement, it might read like this: "To develop in the Vocational Teacher the ability to write a job entry, individualized curriculum." In this goal, the

behavioral domain or area would be "to write" the

psychological object(s) involved would be "Vocational Teacher" and the

program variable would be "a job entry, individualized curriculum."

The goal, "To assist the ninth grade student in learning to multiply fractions" would have the following components:

behavioral domain or area - multiply

psychological object(s) involved - ninth grade students

program variable - fractions

A goal, then, must be written so that it states the type of behavior (behavioral domain or area) that is being requested of the learner (psychological object(s) involved) on a particular concept (program variable).

EXAMPLES

b.d. - behavioral domain or area

p.o. - psychological object(s) involved

p.v. - program variable

1. To improve the (motor skill abilities) in (physical fitness) of the (student).
   b.d. p.v. p.o.

2. To develop in the (student) the ability to (operate) (power driven saws).
   p.o. b.d. p.v.

3. To develop in the (student) an (appreciation) for (Democracy as a form of government).
   p.o. b.d. p.v.

4. To assist the (student) in learning to (recognize) (incorrect sentence structure).
   p.o. b.d. p.v.

5. To develop in the (teacher) the ability to (relate) with the (disadvantaged child).
   p.o. b.d. p.v.

6. To develop in the (elementary child) an (awareness) of (selling as a career).
p.o. b.d. p.v.

7. To develop in the (math student) the skills required for (computing) (three dimensional problems in volume).
p.o. b.d. p.v.

Goals

A goal states type of behavior (behavioral domain) that is being requested of the learner (psychological object) involved in a particular concept (program variable).

Example:

	psychological object	behavioral domain
To develop in the	student	an appreciation for
	program variable	
Democracy as a form of government.		

STUDY QUESTIONS ACTIVITY I

ENABLING ELEMENT I

I. For each goal, label its components, using the given abbreviations.

b.d. - behavior domain

p.o. - psychological object(s)

p.v. - program variable

A. To assist the (health occupations student) in learning to (identify) the different (types of blood).

B. To develop in the (Occupational Specialist) the ability to (secure) adequate (job placements for students).

C. To improve the (student's) ability to (divide) (whole numbers).

D. To develop in the (teacher) the necessary skills for (writing) valid (test questions).

E. To assist the (student) in learning how to

(identify and use) basic (small hand tools).

II. For each goal, identify its components by filling in the blanks.

A. To develop in the auto mechanic the ability to utilize modern tuning techniques.

1. behavior domain _____

2. psychological object(s) _____

3. program variable _____

B. To assist the food service student in learning how to read a recipe.

1. behavior domain _____

2. psychological object(s) _____

3. program variable _____

C. To familiarize the teacher with the fundamentals of grading tests.

1. behavior domain _____

2. psychological object(s) _____

3. program variable _____

D. To develop in the student the ability to recognize proper nouns.

1. behavior domain _____

2. psychological object(s) _____

3. program variable _____

E. To develop in elementary students the awareness, knowledge and appreciation of the career of a police worker.

1. behavior domain _____

2. psychological object(s) _____

3. program variable _____

III. For each of the following concepts, write a goal statement. Use the space provided.

A. teaching students to write whole numbers

Goal Statement:

B. teaching Occupational Specialists to assess guidance services

Goal Statement:

C. instructing elementary students about careers in mechanics

Goal Statement:

D. teaching salesmen about new sales techniques

Goal Statement:

E. instructing teachers in utilizing positive classroom techiniques

Goal Statement:

IV. For each goal written in question III, identify the behavior domain or area, psychological object(s) and program variable.

A. behavior domain or area _____

psychological object(s) _____

program variable _____

B. behavior domain or area _____

psychological object(s) _____

program variable _____

C. behavior domain or area _____

psychological object(s) _____

program variable _____

D. behavior domain or area _____

psychological object(s) _____

program variable _____

E. behavior domain or area _____

psychological object(s) _____

program variable _____

PRE-ASSESSMENT AND DIAGNOSTIC SELF-TEST

ENABLING ELEMENT NO. IV

"SPECIFIC OBJECTIVES"

DIRECTIONS

Identify each of the following specific objectives as either appropriate (A) or inappropriate (I) by circling the correct letter. For each specific objective you select as inappropriate, rewrite the statement so that it is appropriate. Check your answers with those provided on the next page.

A or I 5. The student will correctly spell, in writing, a given list of words.

A or I 6. Each student will demonstrate the ability to add and subtract whole numbers by completing a shipping invoice with no more than five errors.

A or I 7. The student will understand woodworking vocabulary.

A or I 8. The student will list, in writing, five ways that the dairy industry helps the community.

ANSWER SHEET FOR ENABLING ELEMENT NO. IV

QUESTION	CORRECT ANSWER
5.	I
6.	A
7.	I
8.	A

#5, rewritten: The student will correctly spell, in writing, a given list of words with 75% accuracy.

#7 rewritten: The student will define, in writing, a given list of woodworking vocabulary words with 85% accuracy.

INTERPRETATION

If you correctly answered all four questions, it is not necessary that you complete Enabling Element IV, though it will reinforce your skills in this area.

If you did not correctly answer all four questions, you should complete Enabling Element IV.

ENABLING ELEMENT NO. IV

OBJECTIVE

The objective of this enabling element is: "You will correctly construct a specific objective, including the three major components."

INSTRUCTIONAL ACTIVITIES (to be completed in sequence)

Activity No. 1 - Read and study "The Components of a Specific Objective," pages 60 through 62 of this module. Then complete the study questions on pages 63 through 65 of this module.

Activity No. 2 - Read and study "Measurable and Observable Verbs," page 66 of this module. Complete the study questions on pages 67 through 68 of this module.

OPTIONAL INSTRUCTIONAL ACTIVITY

Read and study any or all of the following for reinforcement in writing behavioral objectives.

1. Developing Performance Objectives, Bureau of Research and Evaluation, Division of Vocational, Technical and Adult Education.
2. Preparing Instructional Objectives, Robert F. Mager
3. Using Performance Objectives, Thorwald Esbensen

THE COMPONENTS OF A SPECIFIC OBJECTIVE

SPECIFIC OBJECTIVE

A statement of exact instructional intent.

A well written specific objective must have three components.

A. Expected student behavior - usually determined by a verb - must be measurable and observable.

B. Conditions under which the behavior will occur - time limit, equipment or resources needed may be specified.

C. Criteria by which acceptable behavior will be measured - states the minimum degree of student performance.

In the specific objective, "The Vocational Teacher will, given a specific objective, identify in writing its three major components with 100% accuracy," the expected student behavior is "identify in writing the three major components (of a behavioral objective)," the condition under which the behavior will occur is "given a behavioral objective" and the criteria is "with 100% accuracy." This is an exact statement of instructional intent in that there is no room for discrepency; the objective states exactly what is expected of the learner.

EXAMPLES

1. The student will, using a prepared list, match woodworking vocabulary with correct definitions with 80% accuracy.

   student behavior - match woodworking vocabulary with correct definitions

   condition - using a prepared list

   criteria - with 80% accuracy

2. The student will correctly spell, in writing, a given list of words with 90% accuracy.

   student behavior - spell in writing (a given list of words)

   condition - given list of words

   criteria - with 90% accuracy

3. The student will demonstrate the ability to add and subtract whole numbers by computing a given number of teacher selected problems with 95% accuracy.

   student behavior - add and subtract whole numbers

   condition - given number of teacher selected problems

   criteria - with 95% accuracy

4. The student will write one objective in behavioral terms, including the expected student behavior, specific conditions under which the expected behavior will occur and criteria by which the expected behavior will be measured.

   student behavior - write one objective in behavioral terms

   condition - including the expected student behavior, specific conditions under which the expected behavior will occur and by which the expected behavior will be measured.

   criteria - with no errors

5. The student will orally list the job duties of eight workers in the dairy industry with 80% accuracy.

   student behavior - orally list the job duties of eight workers in the dairy industry

condition - none are stated -
if the behavioral objective is a part of a lesson plan, many times the conditions are implicit within the lesson plan and in particular, the activities. This is acceptable, especially when alternate activities are offered. The secret to omitting the "conditions component" lies in the answer to the question "Is the objective explicit and exact without stating the conditions?"

criteria - with 80% accuracy.

Specific Objective -
has these 3 components --

① Expected Student behavior
② Conditions under which behavior will occur
③ Criteria by which acceptable behavior will be measured

Example:

The student will, (condition: using a prepared list,) (student behavior: match woodworking vocabulary with correct definitions) (criteria: with 80% accuracy.)

STUDY QUESTIONS, ACTIVITY 1

ENABLING ELEMENT IV

I. For each specific objective below, identify each of its three major components by filling in the blanks.

a. The student will, given a word list, match each word with its definition with no more than 3 errors.

expected student behavior _____

_____

conditions _____

_____

criteria _____

_____

b. The student will list 5 duties of a police officer with 80% accuracy.

expected student behavior _____

_____

conditons _____

_____

criteria _____

_____

c. The student will spell in writing a given list of words with 80% accuracy.

expected student behavior _____

_____

conditions _____

_____

criteria _____

_____

d. The student will, given a list of job activities and positions, match each activity with the correct position with 95% accuracy.

expected student behavior _____

_____

conditions _____

_____

criteria _____

_____

e. The student will list 5 situations in which a police officer would be needed.

expected student behavior _____

_____

conditions _____

_____

criteria (be careful) _____

_____

II. Identify each of the following specific objectives as either appropriate (A) or inappropriate (I) by circling the correct letter. For each behavioral objective you select as inappropriate, rewrite the statement so it is appropriate.

A or I a. The student will spell a list of words.

A or I b. The student will, given ten sentences, identify without error those which are incorrectly structured.

A or I c. The student will divide fractions.

A or I d. Given a list of verbs, the Occupational Specialist will identify at least ten verbs which are measurable.

A or I e. Given a blank U.S. map, the student will label the states.

"MEASURABLE AND OBSERVABLE VERBS"

In activity 1, the three components of a correctly written specific objective were discussed. The first of these components, expected student behavior, usually causes the greatest concern. The primary reason for this concern is the selection of a measurable and/or observable verb. Remember, the verb must be explicit in that it describes in exact terms what type of measurable and/or observable behavior is expected of the learner.

One verb which is often, but incorrectly used, is "understand." How can we measure or observe that a student "understands" a particular concept? The objective, "The student will understand the philosophy of democracy" is vague - it is not measurable or observable. "The student will list the ten major points of the philosophy of democracy, without error" deals with the same concept, but is explicit; it is measurable (if he lists ten, then the student meets the objective) and it can be observed.

Other examples of vague and unacceptable behavior verbs are:

know	appreciate	enjoy
have faith in	be aware of	like

Some examples of explicit and acceptable behavior verbs are:

write	identify	solve
list	recite	compute
construct	illustrate	name
tabulate		

In selecting a behavior verb, if it passes the test "Can I measure or observe it?", then it is acceptable. If it cannot, then it is unacceptable.

Measurable and Observable Verbs

In selecting a behavior verb, if it passes the test "Can I measure or observe it?," then it is acceptable. If it cannot, then it is unacceptable.

STUDY QUESTIONS, ACTIVITY 2

ENABLING ELEMENT IV

I. Below are listed a number of verbs. Circle those which would be acceptable behavior verbs for a specific objective.

a. list	k. match
b. know	l. compute
c. write	m. agrees with
d. label	n. be aware of
e. identify	o. construct
f. appreciate	p. solve
g. have knowledge of	q. illustrate
h. name	r. like
i. understand	s. enjoy
j. sees value in	t. outline

II. Identify each of the following specific objectives as either appropriate (A) or inappropriate (I) by circling the correct letter. For each specific objective you select as inappropriate, rewrite the statement so it is acceptable.

A or I a. The student will, given a list of terms related to government, be aware of their significance.

A or I b. The Occupational Specialist will, given a list of behavioral objectives, label each as appropriate or inappropriate without error.

A or I c. The student will appreciate the value of first aid training with 75% accuracy.

A or I d. The student will identify without error the type of government for each of a given list of countries.

A or I e. The student will compute without error a given number of algebraic equations.

A or I f. Given a ruler, the student will know each of the major divisions.

A or I g. The student will, given a list of driving habits, identify those which are safe without error.

PRE-ASSESSMENT AND DIAGNOSTIC SELF-TEST

ENABLING ELEMENT NO. V

"JOB OBJECTIVES"

DIRECTIONS

On the next two pages are several questions which correspond to the objectives of this enabling element. After completing the test items, check your answers with those provided on the sheet immediately following the questions.

For each question, select the best answer by writing the corresponding letter in the space provided.

( ) 1. The job objectives

a. act as the transitional step from the developmental to the curriculum phase

b. are constructed from the job description

c. are constructed from combining the task listing and corresponding task detailings.

d. a and b only

e. a and c only

( ) 2. From the job objectives are developed

a. the activities in the Laps

b. the goals in each of the Laps

c. the specific objectives in the Laps

d. a and b only

e. a and c only

f. b and c only

g. a, b and c

( ) 3. A correctly written job objective indicates

a. the minimum degree of acceptable student performance

b. activities students will have to complete

c. time allowed for completing each objective

d. a and b only

e. a and c only

f. b and c only

g. a, b and c

( ) 4. There must be one job objective for

a. each task listed in the task listing

b. each task detailing sheet

c. each task listed in the task detailing sheet

d. a and b only

e. a and c only

f. b and c only

g. a, b and c

ANSWER SHEET

PRE-ASSESSMENT AND DIAGNOSTIC SELF-TEST

ENABLING ELEMENT NO. V

QUESTION	CORRECT ANSWER
1.	e
2.	f
3.	a
4.	a or b or d

INTERPRETATION

If you correctly answered all four questions, it is not necessary that you complete all of Enabling Element V, though it will reinforce your skills in this area. In such a case, you may, if desired, complete only Experience Activity III, beginning on page 79.

If you did not correctly answer all four questions, you should complete Enabling Element V.

ENABLING ELEMENT NO. V

OBJECTIVE

The objective of this enabling element is: "You will, given a task analysis, develop, in writing, corresponding job objective."

INSTRUCTIONAL ACTIVITIES

Activity No. 1 - Read and study "Job Objectives," pages 73 through 76 of this module.

Activity No. 2 - Complete the study questions "Job Objectives," pages 77 and 78.

Activity No. 3 - Develop in writing, job objectives which correspond to your task analysis developed in Enabling Element I by completing Experience Activity III on pages 79 and 80 of this module.

"JOB OBJECTIVES"

In the introduction of this module on pages 2 and 3, the two phases of developing a fused, job entry, individualized curriculum were discussed. The job objectives, the last component of the preparation phase, or phase I, acts as the transition from phase I to phase II, the curriculum phase. From the job objectives, are developed the goals and specific objectives of the curriculum.

Development of the job objectives is basically just combining and rewording the task listing and corresponding task detailings. There must be one job objective for every task listed in the task listing.

A job objective, then, simply combines a task listing statement with the corresponding task detailing sheet.

A job objective consists of two parts; the opening statement which is derived from the task listing statement and the subheadings which are derived from the corresponding task detailing sheet.

For example, if the task listing statement is "services disc brakes" and the task details are

1. replaces brake pads
2. reconditions brake calipers
3. replaces piston seals
4. turns brake rotors
5. bleeds brake systems

then combining these two could give the following job objective.

To assist the automobile mechanics students in learning the necessary skills for servicing automobile disc brakes as evidenced by his ability to complete each of the following with 100% accuracy.

a. replace the brake pads on each of a Ford, Chrysler and General Motors car.

b. recondition each of a Ford, Chrysler and General Motors brake calipers.

c. replace piston seals on each of a Ford, Chrysler and General Motors brake calipers.

d. turn at least one brake rotor.

e. bleed at least one disc brake system.

Notice in the opening statement the minimum degree of acceptable student performance (100% accuracy) is also stated. Also, each subheading although derived from the task details describe what the student will have to accomplish.

AUTOMOBILE MECHANICS

JOB OBJECTIVES

JOB ENTRY - AUTOMOBILE SERVICE SPECIALIST (BRAKES)

1. To develop in the automobile mechanics student those skills necessary for servicing hydraulic brake systems as evidenced by his ability to complete the following with 100% accuracy.

   a. Diagnose a teacher selected brake problem.

   b. Remove and recondition two hydraulic wheel cylinders to manufacturer's specifications.

   c. Remove and recondition one hydraulic master cylinder to manufacturer's specifications,

   d. Recondition two tandem-type hydraulic master cylinders to manufacturer's specifications.

   e. Remove, test and replace two stop light switches.

2. To develop in the automobile mechanics student the skills necessary for servicing automotive drum brakes as evidenced by his ability to complete the following with 100% accuracy.

   a. Replace and adjust at least one set of front and rear standard type brake shoes to manufacturer's specifications.

   b. Replace and adjust at least one set of front and rear self-adjusting type brake shoes to manufac urer's specifications.

   c. Adjust a parking brake on a duo-servo brake assembly to manufacturer's specifications.

   d. Clean, repack, replace and adjust at least one set of front wheel bearings.

   e. Replace at least one set of front wheel seals.

   f. Turn at least one brake drum and record measurements.

   g. Grind at least one brake drum and record measurements.

   h. Grind at least one set of brake shoes.

3. To assist the automobile mechanics student in learning the necessary skills for servicing automobile disc brakes as evidenced by his ability to complete the following with 100% accuracy.

JOB OBJECTIVES, cont.

a. Replace the brake pads on each of a Ford, Chrysler and General Motors car.

b. Recondition each of a Ford, Chrysler and General Motors brake calipers.

c. Replace piston seals on each of a Ford, Chrysler and General Motors brake calipers.

d. Turn at least one brake rotor.

e. Bleed at least one disc brake system.

4. To develop in the automobile mechanics student the necessary skills for servicing automotive power brakes as evidenced by his ability to complete the following with 100% accuracy.

a. Diagnose teacher selected malfunctions and replace power brake units on each of a Ford, Chrysler and General Motors car.

b. Diagnose teacher selected malfunctions and replace vacuum lines and components.

c. Adjust power brake linkage on each of a Bendix and a Midland-Ross power brake unit.

STUDY QUESTIONS

"JOB OBJECTIVES"

DIRECTIONS:

Decide whether each of the following statements is (T) true or (F) false by circling the appropriate letter. Rewrite each statement you select as false, so it becomes true. Check your answers with those provided on pages 147-152.

T F 1. The job objective acts as the transitional stage from the preparation phase to the curriculum phase.

T F 2. The goals and specific objectives of the curriculum are derived from the job objectives.

T F 3. Job objectives are developed by combining and rewording the job description and task listing.

T F 4. The time allowed for completing each objective should be stated in the job objectives.

T F 5. There must be one job objective for each task listed in the task detailing sheet.

T F 6. The minimum degree of acceptable student performance should be stated in the job objectives.

7. In the space provided below, construct a job objective using the task listing statement "services automotive power brakes" and the following task detailings.

   a. diagnoses malfunctions and replaces power brake units.

   b. diagnoses malfunctions and replaces vacuum lines and components.

   c. adjusts power booster linkage.

Check your answer with job objective #4 in the sample provide on page 76.

"EXPERIENCE ACTIVITY III"

"JOB OBJECTIVES"

Using the worksheets provided on the next few pages, complete the following. You may refer back to the informational materials whenever necessary.

If you have developed all of the necessary task detailing sheets complete activity 1a. If you have developed only one task detailing sheet complete activity 1b.

1a. Using the task listing and corresponding task detailing sheets developed in Enabling Element I, formulate a job objective for each task listed in the task listing. Show your completed job objective(s) to the trainer before proceeding to the next enabling element.

1b. Using the task listing and corresponding task detailing sheet developed in Enabling Element I, formulate a job objective. Show this job objective to the trainer before proceeding to the next enabling element.

NOTE: The job objective(s) which you have just completed and had approved by the trainer should be saved for future use.

(VOCATIONAL COURSE)

JOB OBJECTIVES

Job Entry -

PRE-ASSESSMENT AND DIAGNOSTIC SELF-TEST

ENABLING ELEMENT VI

"THE COMPONENTS OF A LAP"

DIRECTIONS:

For each question, select the best answer by writing the corresponding letter in the space provided. Check your answers with those provided on page 83.

( ) 9. In a LAP, for each specific objective there must be at least one corresponding

a. goal
b. activity
c. post test question
d. a and b only
e. b and c only
f. a, b and c

( ) 10. In a LAP, each activity must be related to a

a. goal
b. specific objective
c. pretest question
d. a and b only
e. b and c only
f. a, b and c

( ) 11. In a LAP, each post test question must be related to a

a. goal
b. specific objective
c. activity
d. a and b only
e. b and c only
f. a, b and c

( ) 12. A written LAP must have which of the following components?

a. goal
b. ideas
c. specific objectives
d. activities
e. post test

f. a, b, c, d and e
g. a, c, d and e only
h. c and d only
i. c, d and e only

ANSWER SHEET FOR ENABLING ELEMENT VI

QUESTION	CORRECT ANSWER
9.	e
10.	b
11.	b
12.	g

INTERPRETATION

If you correctly answered all 4 questions, it is not necessary that you complete Enabling Element VI, though it will reinforce your skills in this area.

If you did not correctly answer all 4 questions, you should complete Enabling Element III.

ENABLING ELEMENT VI

OBJECTIVE

The objective of this enabling element is: "You will define each of the following as they relate to a learning activity package: goal, specific objective, activities, pretest and post test."

In order to meet this objective, you should complete the following activity.

INSTRUCTIONAL ACTIVITY

Activity 1. Read and study "LAPs," pages 85 and 86 of this module. Complete the study questions on pages 87 and 88 of this module.

"LAPS"

A well developed LAP has five major components. Secondary elements may be included and will be discussed in Enabling Element VII.

The five major components of a LAP are goal, specific objectives, activities, pretest and post test and are defined as follows.

goal: statement of general instructional intent.

specific objectives: statements of exact instructional intent

activities: the actual things a student must do in order to meet the stated objectives.

pretest: a test administered to the student before beginning the LAP to determine if he already has the skills taught by the LAP. Correct and continuous utilization of this component is absolutely necessary for a program which is to be individualized.

post test: a test administered after completion of the LAP to determine if the student has met the stated objectives.

Not only must these five elements be included in a well developed LAP, they also must relate to each other. They act together, not separately, to form a LAP. Their relationship may be described as follows:

goal: acts as the "point of departure" for developing the LAP. As defined, it is the general instructional intent.

specific objectives: derived from the goal, they bring into focus exactly what is expected of the student. They state what the learner must accomplish in order to meet the stated goal. For each specific objective there

must be at least one corresponding activity and at least one corresponding pretest question and one corresponding post test question.

activities: this component will be discussed more fully in Enabling Element VII. It is important to remember that every activity must relate back to a specific objective.

pretest and post test: these components will also be discussed more fully in Enabling Element VII. Every pretest and post test question must, however, relate back to a specific objective. The questions must also test the same student behavior stated in the specific objective.

STUDY QUESTIONS, ACTIVITY 1

ENABLING ELEMENT VI

Identify each of the following questions as either true (T) or false (F) by circling the correct letter. For any questions you select as false, reword the statement so it becomes true. Check your answers with those provided on pages 147-152 of this module.

T or F 1. Goals are statements of general instructional intent.

T or F 2. Specific objectives are derived from the activities.

T or F 3. For each goal in a LAP, there must be at least one corresponding activity.

T or F 4. Activities are the actual things a st dent must do in order to meet the stated specific objectives.

T or F 5. For each specific objective there must be at least one corresponding pretest question and one corresponding post test question.

T or F 6. The post test is a test administered after completion of the LAP to determine if the student has met the stated objectives.

T or F 7. In a well developed LAP, each of the five major components interact.

T or F 8. The activities act as the "point of departure" for a LAP.

T or F 9. A post test question may request a different type of student behavior than that stated in the corresponding specific objective.

T or F 10. Specific objectives are statements of exact instructional intent.

PRE-ASSESSMENT AND DIAGNOSTIC SELF-TEST

ENABLING ELEMENT VII

"Writing the Lap"

DIRECTIONS:

For each question, select the best answer by writing the corresponding letter in the space provided. Check your answers with those provided on page 91 of this module.

( ) 13. In a true evaluation, each test question must correspond to

a. the goal
b. a specific objective
c. an activity
d. all of the above
e. none of the above

( ) 14. Student retention rate would be higher from

a. listening to a lecture
b. seeing and listening to a film
c. seeing a non-audio film
d. reading a story

( ) 15. In writing a pre or post test, which of the guidelines listed below should be followed?

a. total utilization of test questions which require total recall should be avoided.
b. lengthy tests in terms of time should be avoided
c. "trick" questions should be used as they help the student stay "on-his-toes"
d. a and b only
e. a and c only
f. b and c only
g. a, b and c

( ) 16. In selecting and writing activities for students to complete, which of the guidelines listed below should be followed?

a. have the students do a lot of reading and writing
b. get the students involved in hands-on and discussion activities

c. offer a variety of activities which reach multiple learning modes
d. a and b only
e. a and c only
f. b and c only
g. a, b and c

ANSWER SHEET FOR ENABLING ELEMENT VII

QUESTION	CORRECT ANSWER
13.	b
14.	b
15.	f
16.	d

INTERPRETATION

If you correctly answered all 4 questions, it is not necessary that you complete activities 1, 2 and 3 in Enabling Element VII,though they will reinforce your skills in this area. Activity 4 must be completed, as it is an experience activity.

If you did not correctly answer all 4 questions, you should complete all of Enabling Element VII.

ENABLING ELEMENT VII

OBJECTIVE

The objective of this enabling element is: "You will, given an occupational area, generate, in writing, a learning activity package."

In order to meet this objective, you should complete each of the following activities, in sequence.

INSTRUCTIONAL ACTIVITIES:

Activity 1: Read and study "Activities," pages 93-95 of this module.

Activity 2: Read and study "Evaluation," page 96 of this module.

Activity 3: Complete the study questions, "Activities and Evaluation," pages 97 & 98.

Activity 4: Complete Experience Activity IV, "Steps in Writing a Learning Activity Package," pages 99 to 126 of this module. Check with inservice trainer.

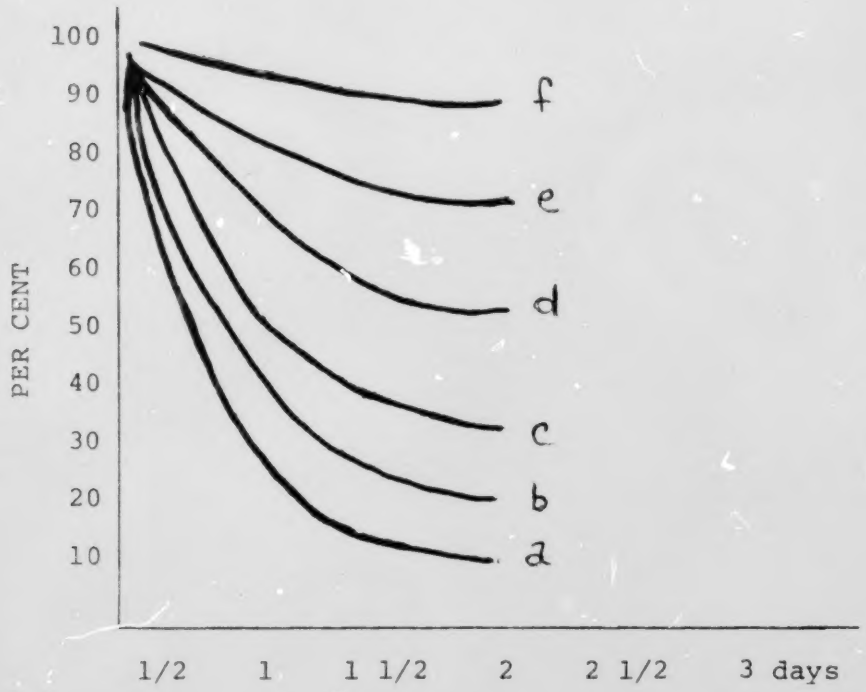
NOTE: Successful completion of activity #4 will generate one learning activity package. In order to complete the total, job entry curriculum, this activity should be repeated once for each job objective.

"ACTIVITIES"

Of the five major components of a LAP, the activities will most likely determine the success or failure of the LAP. Expose the students to "cut and dried" activities, and the LAP will probably be a flop. Provide meaningful, exciting and varied activities, and a high degree of the learners will meet the stated specific objectives.

The graph below illustrates this point.

RENTENTION RATE OF STUDENTS



The above graph depicts the retention rate of students as it relates to time and teaching techniques. The following observations may be made:

TEACHING OR LEARNING TECHNIQUE	RETENTION AT THE END OF THREE DAYS
a. student reads	10%
b. student hears (lecture, tape, etc.)	20%
c. student sees (demonstration, non-audio film)	30%
d. student sees and hears (audio film, demonstration, etc.)	50%
e. student says something (discussion)	70%
f. student says something while he is doing something (high activity, a hands-on type teaching technique)	90%

CONCLUSIONS

a, b, c, and d are all passive learning situations.
e and f are active learning situations.

SOURCE: Mr. Martin Broadwell, Staff Engineering Training Supervisor, Southern Bell Telephone and Telegraph Company

The following list of activities have been used with various degrees of success by teachers in career education classrooms. They are rated by a selected group of elementary teachers, with the most successful activity listed first, the least successful last.

1. Hands-on activities
2. Film and record
3. Construction activities
4. Film/video tapes/tapes
5. Resource person
6. Role playing
7. Field trip
8. Film loop
9. Television production
10. Discussion
11. Slides (narration by teacher)
12. Drama or program for parents
13. Game playing
14. Songs
15. Bulletin Boards
16. Thank you letters

17. Reading related topics in books, magazines, etc.
18. Creative activities in writing
19. Collecting pictures or newspaper articles
20. Record
21. Write reports

Comparing these activities with the retention graph, it is obvious that the teachers usually rated activities high which also rated well in the retention graph. For instance, both the teachers and the graph ranked hands-on activities as the most successful, whereas reading related topics was rated low in both cases.

This does not necessarily indicate that "reading, writing and listening" type activities should be discarded. Rather, the methods should be varied so that the students' senses of learning will be totally reached.

One effective method involving reading and writing is to incorporate a "study sheet," "worksheet," or "study questions" within the LAP. For example, an activity might read, "complete the worksheet on page 3 of this package." The corresponding worksheet may be a crossword puzzle of related terms, fill in the blanks or matching activity, picture identification, study questions related to a reading or audio-visual assignment, etc.

Meaningful, Exciting and Varied Activities

"Hands-on" activities rate as most successful when teaching students.

"EVALUATION"

The technique of writing valid test questions requires a great deal of training and experience. No attempt will be made at this point to provide an indepth analysis of constructing test questions. Rather, it is important that the relationship of the evaluation and the specific objectives be fully understood.

Utilization of the following guidelines will help avoid many common pitfalls.

1. For each specific objective, there must be at least one corresponding pretest question and one corresponding post test question.

2. Each question must correspond to a specific objective.

3. Questions must test the same type of student behavior stated in the specific objective. For example, if the objective states the student will identify correct sentence structure, a test question cannot validly ask the student to write a sentence using correct structure.

4. Total utilization of test questions which require recall should be avoided. Such test questions may ask the learner to list, discuss in writing, describe, etc. This does not mean total recall questions should not be used. They may be used effectively if mixed with multiple choice, matching, true-false and fill-in-the-blank questions.

5. Remember, a good test question is meant to evaluate the learner's knowledge. "Trick" questions provide no meaningful evaluation and should be avoided.

6. Lengthy tests, in terms of time, should also be avoided. Many youngsters have short attention spans and quickly lose interest in a long, involved test. Consequently, a lengthy test tends to evaluate the learner's attention span rather than his knowledge.

STUDY QUESTIONS

"ACTIVITIES AND EVALUATION"

For each of the following questions, decide whether the statement is true or false by circling the T for true or the F for false. Rewrite each statement you select as false so that it becomes true. Check your answers with those provided on pages 147-152 of this module.

T or F 1. Students usually retain more from a reading activity than from a discussion activity.

T or F 2. Each test question must correspond to a specific objective.

T or F 3. Reading, writing and listening activities should be totally avoided if possible.

T or F 4. The length of a test is not important.

For each of the following questions, choose the best answer by writing the correct letter in the space provided.

( ) 5. Student retention rate would be higher from

a. listening to a lecture
b. seeing and listening to a film
c. seeing a non-audio film
d. reading a story

( ) 6. Student retention rate would be higher from

a. participating in a discussion
b. making something
c. listening to a cassette tape
d. reading a magazine

( ) 7. Which activity would allow for the best retention?

a. students watch demonstration on how to assemble a model airplane
b. students listen to a tape explaining how to assemble a model airplane
c. students read directions on how to assemble a model airplane
d. students working in pairs to assemble a model airplane

( ) 8. Which of the following test questions would be most appropriate for the specific objective, "the student will identify 5 duties of a police officer."

a. List 5 duties of a police officer.
b. Discuss, in writing, the duties of a police officer.
c. Circle each task listed below which would be a duty of a police officer.

"EXPERIENCE ACTIVITY IV"

"STEPS FOR PREPARING A LEARNING ACTIVITY PACKAGE"

Step 1 - Using the first job objective developed in Enabling Element V, and the worksheet on page 101, complete each of the following in sequence. For the present, ignore the three columns on the bottom left-hand side of the worksheet.

a. Fill-in "package title." The title should readily reflect the package contents. For example, the LAP for Job Objective 1 on page 75 of this module would be "Hydraulic Brake Systems."

b. Complete the criteria statement. Each per cent should be given in the job objective. For example, Job Objective 1 on page 75 would give a 100% criteria.

c. Develop the LAP goal. Remember, this is derived from the opening statement of the job objective. For example, the goal statement derived from Job Objective 1 on page 75 would be, "to develop in the automobile mechanics student those skills necessary for servicing hydraulic brake systems."

d. Formulate the specific objectives for the LAP, using the subheadings from your job objective. The goal, criteria and specific objectives derived from sample Job Objective 1 on page 75 are given on the next page.

See trainer before proceeding to Step 2.

AUTOMOBILE MECHANICS

FUNDAMENTALS OF HYDRAULIC BRAKES

I. Directions

1. Read the entire package carefully. If you need help, see the instructor.

2. See instructor for oral and performance pretest. Successful completion of the automotive pretest will allow you to take the automotive post test.

3. Complete the learning activities.

4. Complete the post test.

   A score of 100% is needed on the automotive post test as evidence for the successful completion of this package.

II. Goal: To develop in the automobile mechanics student the skills necessary for servicing automotive hydraulic brake systems.

III. Specific Objectives

The student will

1. diagnose a teacher selected brake problem.

2. remove and recondition two hydraulic wheel cylinders to manufacturer's specifications.

3. remove and recondition one hydraulic master cylinder to manufacturer's specifications.

4. recondition two tandem-type hydraulic master cylinders to manufacturer's specifications.

5. remove, test and replace two stop light switches.

_____
(PACKAGE TITLE)

I. Directions

1. Read the entire package carefully. If you need help, see the instructor.

2. See instructor for pretest. Successful completion of the _____ pretest will allow you to take
(vocational course)
the _____ post test.
(vocational course)

3. Complete the learning activities.

4. Complete the post test.

A score of _____% is needed on the _____
(vocational course)
post test as evidence for the successful completion of this package.

II. Goal: To develop in the _____ student _____
(vocational course)

_____

_____

III. Specific Objectives

i-y#	Pre-test#	Post Test	The student will

III. Specific Objectives cont.

Activity#	Pre Test# Vcc. only	Post Test

"STEPS FOR PREPARING A LEARNING ACTIVITY PACKAGE"

Step 2 - This step is the most critical in the development of the LAP. For each specific objective, at least one activity must be constructed, using the worksheets on pages 111-113 of this module. An activity may relate back to more than one specific objective and conversely, one specific objective may, and this is suggested, have more than one corresponding activity. Remember, however, that multiple learning approaches are essential. (See "Activities," page 93 of this module.) Activities, materials and resources for the sample specific objectives are given on the following page. Notice that A-V materials, reading, reinforcement study questions and worksheets (samples given on pages 109 to 110 of this module) and hands-on activities are all used.

See the trainer before proceeding to Step 3

IV. Activities, Materials and Resources

1. View film titled, Evolution of Brakes, Ford Motor Co.

2. See instructor for study booklet. Answer the study questions on pages 5-8 of this package. (See next two pages.)

3. See instructor for materials needed and perform activity on pages 9-10 of this package. (See pages 109-110 of this module.)

4. See instructor for demonstration of reconditioning master cylinders.

5. See instructor for materials needed and recondition two single master cylinders.

6. See instructor for materials needed and recondition two tandem-type master cylinders.

7. See instructor for materials needed to test and replace two stop light switches.

FUNDAMENTALS OF HYDRAULIC BRAKES

Study Questions for Activity #2:

_____ 1. What is the basic physical force employed in the automotive brake?

a. adhesion
b. friction
c. leverage

_____ 2. Friction force is multiplied by

a. increasing the pressure between the two sliding surfaces.
b. roughing up the two surfaces.
c. smoothing the friction surfaces.

_____ 3. Coefficient of friction is

a. determined by the surface contact area of the two sliding surfaces.
b. determined by the roughness of the two sliding surfaces.
c. found by dividing the force necessary to slide a piece of brake lining on cast iron by the force which presses against the cast iron surface.

_____ 4. The number of square inches of lining contact against the drum determines

a. the coefficient of friction.
b. the ability of the drum to conduct the heat of friction away from the rubbing surfaces.
c. the only factor that should be considered when comparing the braking ability of one car to another.

_____ 5. The heat of friction developed when stopping an automobile is dissipated by

a. the brake lining.
b. the brake drum.
c. the brake shoe.

_____ 6. The cooling fins on a brake drum reduces

a. brake noise.
b. brake lining life.
c. brake lining fade.

FUNDAMENTALS OF HYDRAULIC BRAKES

Study Questions for Activity #2 cont.

____ 7. The Bendix Self-Adjusting Brake usually adjusts the shoes closer to the drum

a. whenever the car is braked in reverse.
b. only when enough lining is worn off the shoes to allow the secondary shoe to move away from the anchor pin when the car is braked in reverse.
c. when the primary shoe is worn.

____ 8. The mazimum amount that can be removed from the wheel cylinder bore diameter is

a. .005".
b. .002".
c. .010".

____ 9. The master cylinder push rod, which is connected to the brake pedal, pushes against

a. the primary cup.
b. the check valve.
c. the piston.

____10. If the master cylinder push rod length is too long, the

a. brakes will release.
b. brakes will not release.
c. brake pedal will be very low.

____11. The brake pedal slowly sinks to the floorboard as the brakes are applied. What part of the master cylinder is defective?

a. the boot
b. the piston
c. the primary cup

____12. Fluid is leaking out of the rear of the master cylinder into the boot. What part is defective?

a. the secondary cup
b. the primary cup
c. the piston

____13. A vacuum power brake system is constantly needing brake fluid. There are no leaks in the system. What part of the system is defective?

a. the primary cup

Study Questions for Activity #2 cont.

b. the piston
c. the secondary cup

_____14. When rebuilding a closed end master cylinder, be sure that the following part is replaced;

a. the push rod.
b. the check valve seat.
c. the cover.

_____15. The final or last washing of the master cylinder should be done in

a. alcohol.
b. gasoline.
c. mineral oil.

_____16. A car has a hydraulic stop light switch. The stop lights remain on when the brakes are released. What is wrong with the master cylinder?

a. a defective residual check valve
b. the push rod is adjusted too long
c. a plugged master cylinder cover vent

_____17. Late model cars now have a rubber diaphrag between the master cylinder cover and the reservoir. What is the function of this diaphragm?

a. prevents moisture laden air from contaminating the brake fluid
b. no master cylinder vent is needed
c. prevents leaking of fluid into the boot

_____18. Before wheel cylinder parts are installed into the wheel cylinder, the parts should be coated with

a. mineral oil.
b. alcohol.
c. wheel cylinder assembly fluid.

_____19. Brake fluid is forced back to the master cylinder from the wheel cylinder by

a. the anchor pin.
b. self-adjusting mechanism.
c. shoe return springs.

Study Questions for Activity #2 cont.

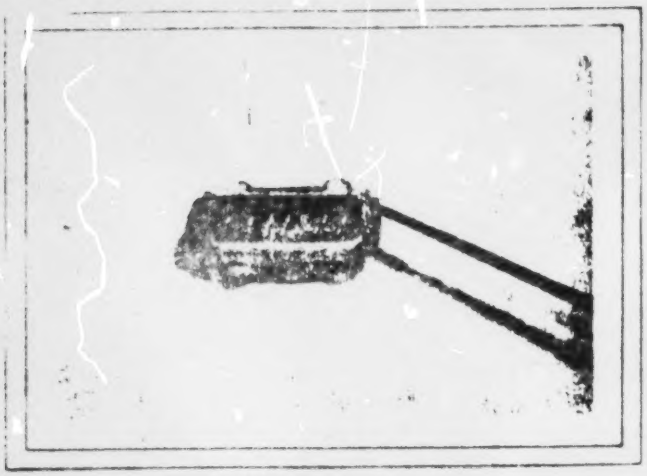
_____ 20. Most drum type brakes of today's vehicles are

a. internal contracting brakes.
b. mechanical.
c. internal expanding brakes.

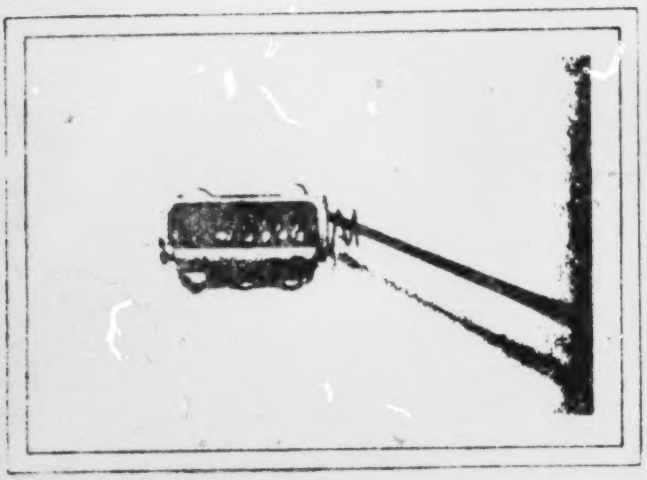
FUNDAMENTALS OF HYDRAULIC BRAKES

WORKSHEET FOR ACTIVITY #3:

WHEEL CYLINDER



REMOVE THE RUBBER SEALING CUPS ... ONE AT EITHER END OF THE SPRING.



NOW ... REMOVE THE WHEEL CYLINDER SPRING.

USING A RAG .. WIPE THE WHEEL CYLINDER BORE CLEAN FROM ANY FOREIGN MATTER AND CHECK THE CYLINDER FOR RUST OR SLIGHT PITS.

STOP! See Instructor

WORKSHEET FOR ACTIVITY #3, cont.:

NEVER HONE A WHEEL CYLINDER DRY. USE EITHER BRAKE FLUID .. OR ASSEMBLY FLUID.

AFTER HONING THE WHEEL CYLINDER .. CLEAN IT OUT WITH A RAG AND DENATURED ALCOHOL. CHECK FOR SMOOTHNESS. IF THE CYLINDER WALLS AREN'T SMOOTH .. THE CYLINDER SHOULD BE REPLACED.

(PACKAGE TITLE)

IV. Activities, Materials and Resources

(PACKAGE TITLE)

Worksheet for Activity #

(PACKAGE TITLE)

Study Questions for Activity #

Step 3 - Constructing the pretest can take many different directions. However, it is absolutely essential that the pretest is able to determine whether or not the student needs to complete the LAP. If this is not accomplished, then the program cannot be successfully individualized. Notice in the directions on the "goal and specific objective" sample page, the statement is made in the second entry that successful completion of the pretest will allow the student to take the post test. The criteria for passing the pretest is stated in the pretest directions. (See sample pretest on pages 116-117 of this module.) If the student successfully completes the post test, then he apparently already has those skills which the package is designed to teach. Then it would be practically meaningless for him to complete the activities. In such a case, he moves on to the next LAP. If, of course, the student fails the pretest or passes the pretest and then fails the post test, he should complete the activities.

A pretest designed to interact with a post test in the manner described above, need not be as comprehensive as the post test. For example, the sample specific objectives on page call for psychomotor or "hands-on" activity by the student. A prerequisite to successfully completing these specific objectives is knowledge of related theoretical concepts. The pretest tests these concepts. It is assumed, that if a student does not possess the basic theoretical knowledge, then he cannot successfully meet the specific objectives, which are psychomotor or performance oriented. If, however, the pretest indicates prior knowledge of the basic theoretical concepts, then the post test will evaluate his ability to complete the psychomotor or performance oriented objectives.

A second approach for constructing and utilizing the pretest is simply designing the pretest to evaluate both the theoretical and performance concepts. In such a case, successful completion of

the pretest indicates the student has those skills taught by the LAP and can proceed to the next learning activity package.

From a classroom management standpoint, the first method is the most efficient as the instructor must provide the necessary conditions and monitoring for the performance oriented test questions only if the student completes the pretest successfully. The second method necessitates providing these conditions for all students for the purposes of the pretest.

Using the worksheet provided on page 118 of this module, construct a pretest based on your specific objectives formulated in Step 1. Review the section, "Evaluation," page 96, whenever necessary. Show your pretest to the trainer before proceeding to Step 4.

AUTOMOBILE SERVICE SPECIALIST (BRAKES)

FUNDAMENTALS OF HYDRAULIC BRAKES

LAP #1

PRETEST : VOCATIONAL NAME_____

Directions: Answer by placing the correct letter in the space provided. A score of 90% on the pretest will allow you to take the post test.

_____ 1. What is the basic force employed in the automotive brake?

a. adhesion
b. friction
c. leverage

_____ 2. Friction force is multiplied by

a. increasing the pressure between the two sliding surfaces.
b. roughing up the two surfaces.
c. smoothing the friction surfaces.

_____ 3. Coefficient of friction is

a. determined by the surface contact area of the two sliding surfaces.
b. determined by the roughness of the two sliding surfaces.
c. found by dividing the force necessary to slide a piece of brake lining on cast iron by the force which presses the brake lining against the cast iron surface.

_____ 4. The number of square inches of lining contact against the drum determines

a. the coefficient of friction.
b. the ability of the drum to conduct the heat of friction away from the rubbing surfaces.
c. the only factor that should be considered when comparing the braking ability of one car to another.

_____ 5. The cooling fins on a brake drum reduce

a. brake noise.
b. brake lining life.
c. brake lining fade.

_____ 6. The heat of friction developed wher stopping an automobile is dissipated by

a. the brake lining.
b. the brake drum.
c. the brake shoe.

PRETEST cont. NAME _____

_____ 7. If the master cylinder push rod length is too long, the

a. brakes will release.
b. brakes will not release.
c. brake pedal will be very low.

_____ 8. The brake pedal slowly sinks to the floorboard as the brakes are applied. What part of the master cylinder is defective?

a. the boot
b. the piston
c. the primary cup

_____ 9. Fluid is leaking out of the rear of the master cylinder into the boot. What part is defective?

a. the secondary cup
b. the primary cup
c. the piston

_____10. Brake fluid is forced back to the master cylinder from the wheel cylinder by

a. the anchor pin.
b. self-adjusting mechanism.
c. shoe return springs.

(JOB ENTRY TITLE)

(PACKAGE TITLE)

LAP #___

PRETEST : VOCATIONAL NAME_____

Step 4 - Using the worksheet provided on page 123 of this module, construct a post test which corresponds to your specific objectives. Notice in the sample post test on pages 120 to 122 that

a. questions 1-17 cover theoretical concepts.

b. question 18 is performance oriented. The waiver statement is optional.

Consult the "Evaluation" section as needed.

See the trainer before proceeding to Step 5.

AUTOMOBILE SERVICE SPECIALIST (BRAKES)

FUNDAMENTALS OF HYDRAULIC BRAKES

LAP #1

POST TEST : VOCATIONAL NAME_____

Directions: Answer by placing the correct letter in the space provided.

_____ 1. What is the basic force employed in the automotive brake?

a. adhesion
b. friction
c. leverage

_____ 2. Friction force is multiplied by

a. increasing the pressure between the two sliding surfaces.
b. roughing up the two surfaces.
c. smoothing the friction surfaces.

_____ 3. Coefficient of friction is

a. determined by the surface contact area of the two sliding surfaces.
b. determined by the roughness of the two sliding surfaces.
c. found by dividing the force necessary to slide a piece of brake lining on cast iron by the force which presses the brake lining against the cast iron surface.

_____ 4. The number of square inches of lining contact against the drum determines

a. the coefficient of friction.
b. the ability of the drum to conduct the heat of friction away from the rubbing surfaces.
c. the only factor that should be considered when comparing the braking ability of one car to another.

_____ 5. The cooling fins on a brake drum reduce

a. brake noise.
b. brake lining life.
c. brake lining fade.

_____ 6. The heat of friction developed when stopping an automobile is dissipated by

a. the brake lining.
b. the brake drum.
c. the brake shoe.

POST TEST, cont.

_____ 7. The Bendix Self-Adjusting Brake usually adjusts the shoes closer to the drum

a. whenever the car is braked in reverse.
b. only when enough lining is worn off the shoes to allow the secondary shoe to move away from the anchor pin when the car is braked in reverse.
c. when the primary shoe is worn.

_____ 8. The maximun amount that can be removed from the wheel cylinder bore diameter is

a. .005".
b. .002".
c. .010".

_____ 9. If the master cylinder push rod length is too long, the

a. brakes will release.
b. brakes will not release.
c. brake pedal will be very low.

_____10. The brake pedal slowly sinks to the floorboard as the brakes are applied. What part of the master cylinder is defective?

a. the boot
b. the piston
c. the primary cup

_____11. Fluid is leaking out of the rear master cylinder into the boot. What part is defective?

a. the secondary cup
b. the primary cup
c. the piston

_____12. A vacuum power brake system is constantly needing brake fluid. There are no leaks in the system. What part of the system is defective?

a. the primary cup
b. the piston
c. the secondary cup

POST TEST, cont.

_____13. The final or last washing of the master cylinder should be done in

a. alcohol.
b. gasoline.
c. mineral oil.

_____14. Swollen cups in the master cylinder indicates that

a. mineral oil was used as a fluid.
b. alcohol was used as a fluid.
c. water had gotten into the system.

_____15. A car has a hydraulic stop light switch. The stop lights remain on when the brakes are released. What is wrong with the master cylinder?

a. a defective residual check valve
b. the push rod is adjusted too long
c. a plugged master cylinder cover vent

_____16. Before wheel cylinder parts are installed into the wheel cylinder, the parts should be coated with

a. mineral oil.
b. alcohol.
c. wheel cylinder assembly fluid.

_____17. The brake light remains burning with the brake released. The

a. fuse is blown.
b. switch is defective.
c. improper fuse was installed.

18. See instructor. Complete each of the following.
Note: If the student has demonstrated his ability to complete any or all of the following, that part may be waived at the discretion of the instructor.

a. remove and recondition two hydraulic wheel cylinders to manufacturer's specifications.

b. remove and recondition one hydraulic master cylinder to manufacturer's specifications.

c. remove and recondition two tandem-type hydraulic master cylinders to manufacturer's specifications.

d. remove, test and replace two stop light switches.

(Job Entry Title)

(PACKAGE TITLE)

LAP #____

POST TEST: VOCATIONAL NAME_____

"STEPS FOR PREPARING A LEARNING ACTIVITY PACKAGE"

Step 5 - The next step in developing the LAP is writing the evaluation checklist. The use of this checklist will be discussed in Enabling Element VIII. To complete the checklist, simply rewrite each specific objective as a positive statement. See sample provided on page 125. A worksheet is provided on page 126 for completing this step.

AUTOMOBILE SERVICE SPECIALIST (BRAKES)

FUNDAMENTALS OF HYDRAULIC BRAKES

LAP #1

EVALUATION NAME _____

The student can	Date Completed	Initial
1. diagnose brake problems.	_____	_____
2. remove and recondition hydraulic wheel cylinders to manufacturer's specifications.	_____	_____
3. remove and recondition hydraulic master cylinders to manufacturer's specifications.	_____	_____
4. remove and recondition tandem-type hydraulic master cylinders to manufacturer's specifications.	_____	_____
5. remove, test and replace stop light switches.	_____	_____

(JOB ENTRY TITLE)

(PACKAGE TITLE)

LAP #_____

EVALUATION NAME_____

The student can Date Completed Initials

"STEPS FOR PREPARING A LEARNING ACTIVITY PACKAGE"

Step 6 - The next step in completing your LAP is designing a cover. The following should be included

a. School Name

b. LAP Title

c. Job Entry Title

d. LAP Number

e. A place for the student's name

f. An "Eyecatcher"

A sample cover is provided on page 128.

WYMORE VOCATIONAL TECHNICAL CENTER

FUNDAMENTALS OF HYDRAULIC BRAKES

AUTOMOBILE SERVICE SPECIALIST
(BRAKES)

NAME_____

LAP # 1

Step 7 - This step is the checking and final step in the LAP developmental process for the vocational teacher. In order to complete this step, you will need the "goal and specific objectives" page developed in Step 1.

First, check the "Directions" to be sure you are satisfied. If not, change them accordingly. Show any changes to the trainer.

Second, using the vertical columns on the left-hand bottom part of the page, check that each specific objective has at least one activity, one pretest question and one post test question. Simply enter the number of the activity, pretest question or post test question in the appropriate column beside the corresponding specific objective.

If any specific objective does not have the necessary corresponding activity, pretest question or post test question, then the missing component should be added.

Step 8 - In order to assimulate your LAP, follow the outline below.

1. Cover (Step 7)
2. "Goal and Specific Objectives" page (Step 1)
3. "Activities, Materials and Resources" page (Step 2)
4. "Worksheets," "Study Questions," etc. (Step 2)
5. "Pretest" (Step 3)
6. "Post Test" (Step 4)
7. "Evaluation Checklist" (Step 5)

Step 9 - If you have completed all task detailing sheets, proceed to Step 10. If not, return to Experience Activity I-3b, page 26.

Step 10 - If you have completed all job objectives, proceed to Step 11. If not, return to Experience Activity III-1b, page 79.

Step 11 - If you have completed each of the LAPs for your job entry curriculum, then proceed to Step 13. If not, return to Step 1, page 99.

Step 12 - If you have completed Enabling Element II, pages 30-46, proceed to Step 13. If not, complete at this time.

Step 13 - Assimilate your job entry curriculum using the following outline.

1. Job Description Sheet
2. Task Listing Sheet
3. Job Prerequisites Sheet
4. Prerequisite Test Sheet
5. Job Objectives Sheet
6. Task Detailing Sheet #1
7. LAP #1
8. Task Detailing Sheet #2
9. LAP #2
10. Task Detailing Sheet #3
11. LAP #3

    Repeat Steps 10 and 11 one time for each LAP

12. Bibliography (Worksheet provided on page 131 of this module.)

(JOB ENTRY TITLE)

BIBLIOGRAPHY

A. Books

B. (A-V Materials, Specify)

PRE-ASSESSMENT AND DIAGNOSTIC SELF-TEST

ENABLING ELEMENT VIII

"Using Individualized Materials"

DIRECTIONS:

On this page are several questions which correspond to the objective of this enabling element. After completing the test items, check your answers with those provided on the sheet immediately following the questions.

Identify each of the following statements as either true (T) or false (F) by circling the correct letter. Rewrite each statement you select as false, so that it is true.

T or F 1. Individualized instruction allows the student to move at his own pace according to his particular abilities.

T or F 2. An individualized program has no place for group activities.

T or F 3. The management of an individualized program can be effectively facilitated by allowing students to work in pairs or small groups.

T or F 4. The transition from the traditional to the individualized approach requires no great teacher changes, only student.

ANSWER SHEET

PRE-ASSESSMENT AND DIAGNOSTIC SELF-TEST

ENABLING ELEMENT VIII

QUESTION	CORRECT ANSWER
1.	T
2.	F
3.	T
4.	F

INTERPRETATION

If you correctly answered all 4 questions, it is not necessary that you complete Enabling Element VIII, though it will reinforce your skills in this area.

If you did not correctly answer all 4 questions, you should complete Enabling Element VIII.

ENABLING ELEMENT VIII

OBJECTIVE

The objective of this enabling element is: "You will, given classroom problem situations involving individualized instruction, identify possible solutions."

INSTRUCTIONAL ACTIVITIES

Activity 1. Read and study, "Using Individualized Materials," pages 135 through 138.

Activity 2. Complete the related study questions on page 139 of this module.

"USING INDIVIDUALIZED MATERIALS"

Using individualized instruction (LAPs), requires some changes in classroom methods. Since individualized instruction allows the student to move at his own pace according to his particular abilities, it allows him to gain self-reliance; it also necessitates that the instructor assume the additional role of manager and director.

Individualized instruction prods the student to plot his own course, while the instructor acts as a guide to insure the course is a fruitful one.

The following suggestions are designed to aid the instructor in his new role as classroom manager and director.

1. For activities involving discussions, films, speakers, field trips or demonstrations by instructor, group participation is often necessary. In such cases, the instructor should simply stop individual work on LAPs and proceed with group activities. If necessary, students may be briefly refreshed at the appropriate time on content of demonstration, film, etc., either by teacher, fellow student or printed outline of material covered.

   If available, a resource center containing films, tapes, etc., could also be utilized to allow the student who has missed a group film showing, etc., to "catch up" individually.

2. Teachers often find themselves swamped with students clamoring to have activities checked, evaluation sheets signed, etc.

   A good method for avoiding this is to design a "Key" for each LAP (or at least for those activities where a "Key" method would be plausible), allow the student to grade his own LAPs and, if desired, complete his own evaluation sheet.

This method has the advantage of allowing the student to see why he has "missed" a particular question. Seeing the correct answer will force him to re-evaluate his thinking and, thus, enhance the learning process. If he does not understand a particular answer, he has this opportunity to discuss it with the instructor and correct his thinking before taking the post test.

Secondly, by completing his own evaluation sheet, the student gains a sense of accomplishment as each activity is checked off and he evaluates his progress and recognizes any weak areas.

Of course there is the problem of the dishonest student who copies the "Key." The solution to this problem is to design a post test which is comprehensive enough to cover all material within a package. This post test is then graded by the instructor. At this time the student who has cheated in package completion will be exposed and can be instructed to redo the package's activities. This procedure shifts the responsibility for proper completion of LAPs to the shoulders of the student, eliminating irritating and unnecessary prodding by the instructor.

HINT: It is a good idea to establish a permanent area for use of the "Key" to avoid its being misplaced.

3. One classroom procedure which avoids a great deal of confusion and use of teacher time is the development of a good filing system.

It is a good idea to use a filing cabinet (boxes will do) to hold all LAPs, Keys, Supplemental material, etc., to be utilized by students. Label these clearly to allow the students to get materials as they are needed. This will eliminate the necessity of interrupting the teacher each time a resource is needed.

HINT: If desired, students can be required to sign for materials on a sign out sheet.

A file folder should be maintained for each student. Evaluation checklists, indicating successful completion of stated objectives, should be faithfully filed in this folder. Pretests and post tests may also be included as a part of the student's file.

4. A record should be made charting student progress in the completion of LAPs. The following example might be employed:

		LAP #1	LAP #2	LAP #3
Student's Name	Date Completed:			
	P.T. grade:			
	COMMENTS:			
" " "	" "			
" " "	" "			

5. Students often learn best by working in teams; pair or group students and allow them to work together whenever practical. Let brighter students help slower ones.

   If a student reaches an activity which requires a partner (role playing, etc.), ask if any other students in the class are about ready for the particular activity -- if so, let those students work together. If a student appears to be either far ahead or far behind in his activities, it may become necessary for the instructor to be the "Partner."

6. It might be helpful to post a printed list of class procedures and include the locations of various materials incorporated in LAPs.

7. If a few students are moving far ahead of the class, you may wish to design supplemental packages which go into greater depth on the subject being studied, or include "enrichment" activities within regular packages to be done by those who have exceptional capabilities.

8. Where the team approach is utilized and the student uses the same package in a number of classes, it is often wise for the teacher or teacher's aide to collect and distribute packages to avoid loss.

Though it does involve some changes in methods and philosophy, the individualized LAP approach has many advantages and great potential for meeting the needs of all learners. Through implementation of the above suggestions and additional ideas of your own, you will find it a rewarding and exciting teaching experience.

STUDY QUESTION

Using your most recent experience as a classroom teacher, discuss in the space below anticipated problems you might have and possible solutions to implementing an individualized program. Consider in your answer, each of the following:

1. student attitude and maturity
2. teacher attitude and flexibility
3. facilities
4. administrator's attitude

POST ASSESSMENT

1. For each of the following concepts write a goal statement. Use the space provided.

   a. teaching occupational specialists to identify potential early school leavers.

      Goal Statement:

   b. instructing students in adding fractions.

      Goal Statement:

   c. providing elementary students with information on careers in education.

      Goal Statement:

2. For each goal written in question 1, identify the behavior domain or area, psychological object(s) and program variable.

   a. behavior domain or area _____

      psychological object(s) _____

      program variable _____

   b. behavior domain or area _____

      psychological object(s) _____

      program variable _____

c. behavior domain or area _____

psychological object(s) _____

program variable _____

3. Identify each of the following specific objectives as either appropriate (A) or inappropriate (I) by circling the correct letter. For each specific objective you select as inappropriate, rewrite the statement so it is appropriate.

A or I a. The student will become aware of the trucking industry.

A or I b. The student will spell a given list of related terms with 90% accuracy.

A or I c. The student will identify improper verb usage in given sentences.

A or I d. Given a blank organizational chart, the student will correctly fill-in the blanks with 80% accuracy.

4. For each specific objective given or rewritten in question 3, identify the expected student behavior, conditions and criteria.

a. expected student behavior _____

_____

conditions _____

_____

criteria _____

_____

b. expected student behavior _____

_____

conditions _____

_____

criteria _____

_____

c. expected student behavior _____

_____

conditions _____

_____

criteria _____

_____

d. expected student behavior _____

_____

conditions _____

_____

criteria _____

_____

5. Complete each statement by filling-in the blank.

   a. In a LAP, for each specific objective there must be at least one corresponding _____.

   b. In a LAP, each activity must be related to _____.

   c. In a LAP, each test question must be related to a _____.

   d. A _____ is a statement of general instructional intent.

   e. _____ are the actual things a student must do in order to meet the stated specific objectives.

   f. In a well developed LAP, each of the five major components _____.

   g. _____ are statements of exact instructional intent.

6. For each of the following questions, choose the best answer by writing the correct letter in the space provided.

( ) a. Student retention rate would be higher from

   a. reading a story.
   b. listening to a lecture.
   c. seeing a non-audio film.
   d. making something.

( ) b. Student retention rate would be higher from

   a. reading a magazine.
   b. participating in a discussion.
   c. listening to a cassette tape.
   d. listening to a lecture.

( ) c. Which activity would allow for the best retention?

   a. watching a demonstration
   b. reading directions on how to make a bookcase
   c. listening to a tape explaining how to make a bookcase
   d. working in a group actually making a bookcase

( ) d. Which of the following test questions would be most appropriate for the specific objective, "The student will list at least three advantages of being a truck driver?"

a. Discuss in writing the advantages of being a truck driver.
b. List at least three advantages of being a truck driver.
c. Identify from a given list, those advantages related to being a truck driver.
d. List at least five advantages of being a truck driver.

( ) e. A properly constructed post test

a. tests each specific objective.
b. tests the same type of student behavior.
c. utilizes a great deal of total recall questions.
d. considers the attention span of the learner.
e. a and b only
f. a and d only
g. a, b and d only
h. a, b, c and d

( ) f. A job description should

a. be brief, simple, but explicit.
b. completely analyze the job.
c. be derived from the task listing.
d. a and b only
e. a and c only
f. b and c only
g. a, b and c
h. neither a, b nor c

( ) g. The task listing

a. is derived from the task detailing.
b. is derived from the job description.
c. is comprised of statements which begin with a "task" verb.
d. a and b only
e. a and c only
f. b and c only
g. a, b and c
h. neither a, b nor c

( ) h. The task detailing

a. is derived from the task listing.
b. is derived from the job description.
c. lists the steps necessary for completing a given task.
d. a and b only
e. a and c only
f. b and c only
g. a, b and c
h. neither a, b nor c

( ) i. The description of student population

a. is based upon the type of student desired.
b. is useful for purposes of designing the curriculum.
c. is based upon the type of student actually in the program.
d. a and b only
e. a and c only
f. b and c only
g. a, b and c
h. neither a, b nor c

( ) j. Job prerequisites

a. should be used to exclude "undesirable" students from the program.
b. are needed for each job entry.
c. should be used to plan the student's total program.
d. a and b only
e. a and c only
f. b and c only
g. a, b and c
h. neither a, b nor c

( ) k. The job objectives

a. act as the transitional step from the developmental to the curriculum phase.
b. are constructed from the job description.
c. are constructed from combining the task listing and corresponding task detailings.
d. a and b only
e. a and c only
f. b and c only
g. a, b and c
h. neither a, b nor c

( ) 1. Individualized instruction

a. allows the student to move at his own pace according to his particular abilities.
b. excludes group activities.
c. necessitates changes in teacher time utilization and planning.
d. a and b only
e. a and c only
f. b and c only
g. a, b and c
h. neither a, b nor c

Match each of the four types of task performances given in the left-hand column with the proper definition by printing the correct letter in the space provided.

7._____	recall	a. "involves analyzing a complex situation and making a decision
8._____	manipulation	b. "indicates a memorization process"
9._____	problem solving	c. "involves decision making when given two or more chances"
10._____	discrimination	d. "indicates hands-on or psychomotor performance"

SCORING - Each incorrect response penalizes the learner two points.

ANSWER KEY FOR SELECTED STUDY QUESTIONS

STUDY QUESTIONS, ACTIVITY 1
ENABLING ELEMENT I
Pages 21 to 25

1. T	7. T	13. c	19. c
2. F	8. T	14. e	20. g
3. F	9. F	15. b	21. c
4. T	10. F	16. a	22. b
5. T	11. f	17. c	23. d
6. T	12. f	18. d	24. a

#2 reworded: "Selection of the job to be described is a critical step."

#3 reworded: "The selection of 'Retail Druggist' as a job entry to be described and analyzed would not be appropriate." (It is too broad.)

#9 reworded: "The task detailing is derived directly from the task listing."

#10 reworded: "The task detailing is the final step in analyzing the job."

STUDY QUESTIONS, ACTIVITY 4
ENABLING ELEMENT II
Pages 41 to 42

1. F	5. F
2. T	6. F
3. T	7. T
4. F	8. F

#1 reworded: "The design of a vocational course is determined by both the task analysis and the student analysis."

#4 reworded: "Job prerequisites should be used to determine the program needs of a student."

#5 reworded: "Job prerequisites should not be developed using a set, standardized format."

#6 reworded: "The prerequisite test should be constructed from the job prerequisites."

#8 reworded: "Constructing and implementing the prerequisite test should be the joint responsibility of the vocational teacher, academic teacher and support personnel, such as, reading teachers and guidance counselors."

STUDY QUESTIONS, ACTIVITY 1
ENABLING ELEMENT II
Pages 53 to 56

I.	A.	"health occupations student"	- p.o.
		"identify"	- b.d.
		"types of blood"	- p.v.
	B.	"Occupational Specialist"	- p.o.
		"secure"	- b.d.
		"job placements for students"	- p.v.
	C.	"student's"	- p.o.
		"divide"	- b.d.
		"whole numbers"	- p.v.
	D.	"teacher"	- p.o.
		"writing"	- b.d.
		"test questions"	- p.v.
	E.	"student"	- p.o.
		"identify and use"	- b.d.
		"small hand tools"	- p.v.

II. A. 1. b.d. "ability to utilize"
2. p.o. "auto mechanic"
3. p.v. "modern tuning techniques"

B. 1. b.d. "read"
2. p.o. "food service student"
3. p.v. "recipe"

C. 1. b.d. "fundamentals of grading"
2. p.o. "teacher"
3. p.v. "tests"

D. 1. b.d. "recognize"
2. p.o. "student"
3. p.v. "proper nouns"

E. 1. b.d. "awareness, knowledge and appreciation"
2. p.o. "elementary students"
3. p.v. "career of a police worker"

III. Examples

A. To develop in the student the ability to write whole numbers.

B. To assist the occupational specialist in learning to assess guidance services.

C. To develop in elementary students an awareness of careers in mechanics.

D. To provide salesmen with the necessary skills in utilizing new sales techniques.

E. To develop in teachers the ability to utilize positive classroom techniques.

STUDY QUESTIONS, ACTIVITY 1
ENABLING ELEMENT IV
Pages 63 to 65

I. a. expected student behavior - "match each word with its definition"

conditions - "given a word list"

criteria - "no more than 3 errors"

b. expected student behavior - "list 5 duties of a police officer"

conditions - "none given"

criteria - "with 80% accuracy"

c. expected student behavior - "spell in writing"

conditions - "given list of words"

criteria - "with 80% accuracy"

d. expected student behavior - "match each activity with the correct position"

conditions - "given a list of job activities"

criteria - "with 95% accuracy"

e. expected student behavior - "list 5 situations in which a police officer would be needed"

conditions - "none given"

criteria - "list 5" (This indicates if 5 or more are listed, the objective is met.)

II. a. I "The student will spell a given list of words with 70% accuracy."

b. A

c. I "The student will divide a given number of fractions without error.

d. A

e. I "Given a blank U.S. map, the student will label the states with no more than 4 errors.

STUDY QUESTIONS, ACTIVITY 2
ENABLING ELEMENT IV
Pages 67 to 68

I. Acceptable verbs - a, c, d, e, h, k, l, o, p, q, t.

II. a. I "The student will, given a list of terms related to government, discuss in writing their significance.

b. A

c. I "The student will list at least 5 values of first aid training with 75% accuracy.

d. A

e. A

STUDY QUESTIONS, ACTIVITY 2
ENABLING ELEMENT V
Pages 77 to 78

1. T	3. F	5. F
2. T	4. F	6. T

#3 reworded: "Job objectives are developed by combining and rewording the task listing and corresponding task detailing."

#4 reworded: "The time allowed for completing each objective should not be stated in the job objective." (In fact, time factors are not considered anywhere in this type of curriculum.)

#5 reworded: "There must be one job objective for each task listed in the task listing."

STUDY QUESTIONS, ACTIVITY 1
ENABLING ELEMENT VI
Pages 87 to 88

1. T	4. T	7. T	9. F
2. F	5. F	8. F	10. T
3. F	6. T		

#2 reworded: "Specific objectives are derived from the goal."

#3 reworded: "For each specific objective in a LAP, there must be at least one corresponding activity."

#8 reworded: "The goal acts as the point of departure for a LAP."

#9 reworded: "A post test question must request the same type of student behavior as stated in the specific objective."

STUDY QUESTIONS, ACTIVITY 3
ENABLING ELEMENT VII
Pages 97 to 98

1. F	3. F	5. b	7. d
2. T	4. F	6. b	8. c

#1 reworded: "Students usually retain less from a reading activity than from a discussion activity."

#3 reworded: "Reading, writing and listening activities should not be the sole type of activities offered."

#4 reworded: "The length of a test is important."

ANSWER KEY FOR POST ASSESSMENT

1. Example Answers

   a. "To provide occupational specialists with the necessary skills for identifying potential early school leavers."

   b. "To develop in the students the ability to add fractions."

   c. "To develop in elementary students an awareness of careers in education."

2. Answers vary according to responses to question number 1.

3. a. I
   b. A
   c. I
   d. A

4. Answers will vary.

5. a. activity - post test questions - pretest questions

   b. a specific objective

   c. a specific objective

   d. goal

   e. activities

   f. interact

   g. specific objectives

6. a. d
   b. b
   c. d
   d. b
   e. g
   f. a
   g. f
   h. e
   i. f
   j. f
   k. e
   l. e

7. b

8. d

9. a

10. c